ENVIRONMENTAL IMPACT REPORT GENERAL WASTE DISCHARGE REQUIREMENTS FOR VINEYARD PROPERTIES LOCATED IN THE NAPA RIVER AND SONOMA CREEK WATERSHEDS

June 30, 2017

Prepared by:
San Francisco Bay
Regional Water Quality Control Board
1515 Clay Street #1400
Oakland, CA 94612

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

Note:

Changes in response to comments on draft EIR are shown in Appendix D

Table of Contents

EXECUTIVE SUMMARY 1

1. INTRODUCTION AND BACKGROUND 30

1.1. EXISTING PHYSICAL CONDITIONS AT VINEYARD PROPERTIES IN THE PROJECT AREA 31

1.2. EXISTING REGULATION OF VINEYARD PROPERTIES 36

1.3. EXISTING LOCAL VOLUNTARY FARM WATER QUALITY PROTECTION PROGRAMS 38

1.4. RELATIONSHIP BETWEEN LOCAL REGULATORY PROGRAMS AND THE GENERAL PERMIT 40

1.5. PURPOSE OF THE EIR 41

1.6. SCOPING PROCESS 41

1.7. PUBLIC INVOLVEMENT 42

1.8. REPORT ORGANIZATION 42

2. PROJECT DESCRIPTION 45

2.1. PROJECT LOCATION 45

2.2. PROJECT OBJECTIVES 45

2.3. OVERVIEW OF THE GENERAL PERMIT (THE PROJECT) 47

2.4. PROJECT CHARACTERISTICS 53

2.5. REASONABLY FORESEEABLE MEANS OF COMPLIANCE 53

BMP-1 Planting and maintaining no-till or winter cover crops 60
BMP-2 Application of composted mulch to provide ground cover 60
BMP-3 Establishing and maintaining a vegetated filter strip 61
BMP-4 Implementing conservation tillage 62
BMP-5 Grassed waterway 62
BMP-6 Diversion ditch 62
BMP-7 Subsurface drainage system 63
BMP-8 Disconnection and/or removal of drainage pipes 64
BMP-9 Constructio n of Level Spreaders 64
BMP-10 Stormwater detention basin or constructed wetland 65
BMP-11 Soil Bioengineering Techniques (that do not involve use of rip-rap or toe-rock, and/or heavy equipment operation in channels) 67
BMP-12 Soil Bioengineering Techniques (that may involve use of rip-rap or toe-rock, and/or heavy equipment operation in channels) 67
BMP-13 Installation of single-post culvert inlet trash racks 75
BMP-14 Construction of water bars (only appropriate for road closed in the wet season) 76
BMP-15 Removal of unstable road fill and/or unstable side-cast materials 76
BMP-16 Road surface outsloping and construction of rolling dips 76
BMP-17 Installation of ditch relief culvert 77
BMP-18 Construction of a critical dip 78
BMP-19 Decommissioning and stabilizing a problem road segment 79
BMP-20 Constructing a new storm-proofed road segment (to replace a problem road) 80
BMP-21 Plant tissue or soil sampling 80

BMP-22 Calibration of agrichemical sprayers and protocols to avoid drift....81
BMP-23 Integrated pest management....81
BMP-24 Construction of concrete pads and/or berms to contain chemical spills....81
BMP-25 Safe pesticide storage....81
BMP-26 Implementation of fertigation practices....81
2.6. INTENDED USES OF THIS DRAFT EIR....82
3. IMPACT ANALYSIS APPROACH....85
3.1. SCOPE OF THE ANALYSIS....85
3.2. APPROACH TO IMPACTS AND MITIGATION MEASURES....86
3.3. ECONOMIC CONSIDERATIONS....86
3.4. IDENTIFYING IMPACT SIGNIFICANCE....88
3.5. IMPACTS DETERMINED TO BE LESS THAN SIGNIFICANT....89
3.6. MITIGATION MEASURES....89
4. AGRICULTURE AND FORESTRY RESOURCES....91
4.1. REGIONAL SETTING....91
4.2. REGULATORY SETTING....94
4.2.1. Federal Regulations....94
4.2.2. State Regulations....94
4.2.3. Local Regulations....100
4.3. ENVIRONMENTAL ANALYSIS....110
4.3.1. Impact Analysis Approach and Methods....110
4.3.2. Thresholds of Significance....110
4.3.3. Impacts and Mitigation Measures....111
5. AIR QUALITY AND GREENHOUSE GASES....116
5.1. AIR POLLUTION AND AMBIENT STANDARDS....116
5.2. REGULATORY SETTING....120
5.3. ENVIRONMENTAL SETTING....123
5.4. IMPACT ANALYSIS METHODS....134
5.5. AIR QUALITY IMPACTS AND MITIGATION MEASURES....137
5.6. GREENHOUSE GAS EMISSIONS....142
5.6.1. Environmental Setting....143
5.6.2. Regulatory Setting....148
5.6.3. Federal Regulations....148
5.6.4. State Greenhouse Gas Regulations....149
5.6.5. Local Greenhouse Gas Regulations....153
5.6.6. Napa County Climate Action Plan....153
5.6.7. Sonoma County Climate Action Plan....155
5.7. IMPACT ANALYSIS METHODS AND THRESHOLDS OF SIGNIFICANCE....155
5.7.1. Impacts and Mitigation Measures....157
5.8. ENERGY CONSUMPTION....162
6. BIOLOGICAL RESOURCES....167

6.1. REGIONAL SETTING....167
6.1.1. Biotic Communities....169
6.1.2. Special-Status Species....174
6.1.3. Wildlife Habitat and Movement Corridors....177
6.2. REGULATORY SETTING....179
6.2.1. Federal Regulations....179
6.2.2. State or Local Regulations....181
6.2.3. County Regulations and Policies....184
6.3. ENVIRONMENTAL ANALYSIS....185
6.3.1. Approach and Methods....185
7. CULTURAL RESOURCES....206
7.1. REGIONAL SETTING....206
7.2. ETHNOGRAPHY....207
7.3. EARLY HISTORY....208
7.4. HISTORIC COMMUNITIES OF THE NAPA AND SONOMA WATERSHEDS....213
7.5. PALEONTOLOGICAL RESOURCES....214
7.6. REGULATORY SETTING....215
7.6.1. Cultural Resources Obligations under CEQA....215
7.6.2. Napa County General Plan....216
7.6.3. Sonoma County General Plan....218
7.7. ENVIRONMENTAL ANALYSIS....220
7.7.1. Impact Analysis Approach and Methods....220
7.7.2. Impact Analysis through Cultural Context and Sensitivity....222
7.7.3. Thresholds of Significance....222
7.7.4. Impacts and Mitigation Measures....223
8. HYDROLOGY AND WATER QUALITY....231
8.1. REGIONAL SETTING....231
8.2. WATER QUALITY....233
8.3. GROUNDWATER RESOURCES....234
8.4. FLOODING....236
8.5. REGULATORY SETTING....237
8.5.1. Water Quality....237
8.5.2. Groundwater Resources....241
8.5.3. Flooding....243
8.6. IMPACT ANALYSIS METHODS....244
8.7. HYDROLOGY AND WATER QUALITY IMPACTS AND MITIGATION MEASURES 244
9. CUMULATIVE IMPACTS....261
10. ALTERNATIVES ANALYSIS....275
10.1. FACTORS FOR SELECTING ALTERNATIVES....275
10.2. ALTERNATIVES THAT WERE CONSIDERED BUT NOT FURTHER ANALYZED...275
10.2.1. Defer WDRs Pending Demonstration of Continued Progress....275
10.2.2. Reduced Scope of Roads Regulated Project Alternative....276
10.2.3. 40-Acre or Larger Vineyards Project Alternative....277

10.2.4. Waiver Enrollment Criteria Project Alternative....278
10.2.5. Hillslope Vineyards Lacking Erosion Control Plans and Vineyard Property Roads Alternative....278
10.2.6. Expanded Low Sediment Delivery Exemption Alternative....279
10.3. ALTERNATIVES CONSIDERED FOR FURTHER CONSIDERATION....280
10.3.1. Alternative 1: No Project....281
10.3.2. Alternative 2: Enroll Vineyard Properties Where ≥ 10 acres Planted in Vineyard281
10.3.3. Alternative 3: Enroll Vineyards ≥ 5 acres throughout Project area, except those Upstream of Reservoirs....284
10.4. COMPARISON OF THE ENVIRONMENTAL CONSEQUENCES OF THE PROJECT ALTERNATIVES....284
10.5. ENVIRONMENTALLY SUPERIOR PROJECT ALTERNATIVE....307
11. OTHER CEQA-REQUIRED SECTIONS....310
11.1. GROWTH INDUCING IMPACTS....310
11.2. SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL EFFECTS....311
11.3. SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL EFFECTS....312
12. LIST OF PREPARERS....314

FIGURES

Figure 2-1 Project Area Boundary
Figure 2-2 Existing Vineyard Properties
Figure 2-3 Winter Cover Crops Established Under Vines and Beneath Vine Rows at this Site
Figure 2-4 Application of Composted Mulch as Ground Cover in a Vineyard
Figure 2-5 An Example of a Vegetated Filter Strip Adjacent to Row Crops
Figure 2-6 Drainage Pipe Installation at a Vineyard in Mendocino County
Figure 2-7 Conceptual Layout of a Level Spreader
Figure 2-8 Conceptual Layout of a Sediment/Detention Basin
Figure 2-9 Cross-section of Constructed Wetland Schematic of Subsurface-flow
Figure 2-10 Example Soil Bioengineering Techniques
Figure 2-11 Schematic of Single-post Trash Rack Including
Figure 2-12 Out-sloped Road with Rolling Dip in View Below the Vehicle
Figure 2-13 Schematic Illustration of a Typical Ditch Relief Culvert
Figure 2-14 Schematic Illustration of a Critical Dip
Figure 2-15 Schematic of Road Decommissioning and Stabilization
Figure 4-1 Farmland Mapping and Monitoring Program-2012 Napa County Map
Figure 4-2 Farmland Mapping and Monitoring Program- 2012 Sonoma County Map
Figure 4-3 Williamson Act Parcels
Figure 6-1 HUC 12 Watersheds
Figure 6-2 Vegetation Communities
Figure 6-3 CNDDB Occurrences of Special Status Plant Species
Figure 6-4 Critical Habitat
Figure 6-5 CNDDB Occurrences of Special Status Wildlife Species

TABLES

Table E-1 Summary of Impacts, Mitigation Measures, and CEQA Findings for the Action Alternatives
Table 2-1 Summary of General Permit Eligibility, Exclusion, and Exemption Criteria
Table 2-3 Compliance Actions and Possible Environmental Effects
Table 4-1 Commercial Timer Species
Table 5-1 Ambient Air Quality Standards
Table 5-2 Air Quality Attainment Status Designations for San Francisco Bay Area Air Basin
Table 5-3 Ozone and Carbon Monoxide Air Quality Monitoring Results- Napa River Watershed
Table 5-4 Particulate Matter Air Quality Monitoring Results - Napa River Watershed
Table 5-6 Napa County - Emissions Inventory for 2012

Table 5-7 Ozone and Carbon Monoxide Air Quality Monitoring Results - Sonoma Creek Watershed
Table 5-8 Particulate Matter Air Quality Monitoring Results - Sonoma Creek Watershed
Table 5-9 San Francisco Bay Area Air Basin Portion of Sonoma County - Emissions Inventory for 2012
Table 5-10 California Greenhouse Gas Inventory for 2000-2010
Table 5-11 California Greenhouse Gas Emissions Forecast (2008-2020)
Table 5-12 Napa County GHG Emissions in 2005 and Project Emissions in 2020
Table 5-13 Construction-Related Energy Consumption
Table 9-1 Summary of Related Projects
Table 9-2 Summary of Cumulative Impacts and the Proposed Project's Contribution
Table 10-1 Summary of Enrollment, Benefits, and Potential Impacts of Proposed Alternatives for Vineyard Properties in the Napa River Watershed
Table 10-2 Comparison of Project Alternatives
Table 10-3 Alternatives Comparison: Ability to Meet Project Objectives

APPENDICES

Appendix A. Draft General Permit for Vineyard Properties
Appendix B. GIS Analysis
Appendix C. Notice of Preparation including attached Initial Study
Appendix D. Response to comments received on the draft EIR

Note: Changes in response to comments on draft EIR are shown in Appendix D

ACRONYMS AND ABBREVIATIONS

ABAG	Association of Bay Area Governments
AP	agricultural preserve
APS	Alternative Planning Strategy
AR	agricultural resource
Army Corps	US Army Corps of Engineers
ATCM	Airborne Toxic Control Measures
AW	agricultural watershed
AWOS	watershed and open space
BA	biological assessment
BAAQMD	Bay Area Air Quality Management District
Basin Plan	Water Quality Control Plan for the San Francisco Bay Basin
BMPs	best management practices
BP	before present
CAAQS	California ambient air quality standards
CAL FIRE	California Department of Forestry and Fire Protection
CAP	clean air plans
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCC	Civilian Conservation Corps
CCR	California Code of Regulations
CCTS	Central California Taxonomic System
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFCs	chlorofluorocarbons
CH_4	methane
CLSI	California Land Stewardship Institute
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO_2	carbon dioxide
Conservation Regulations	Napa County Conservation Regulations
CRA	California Resources Agency
CRHR	California Register of Historical Resources

CRLF	California red-legged frog
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DBH	diameter at breast height
DOC	California Department of Conservation
DPM	diesel particulate matter
DWR	California Department of Water Resources
ECP	Erosion Control Plan
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
F	Fahrenheit
Farmland	Farmland of Statewide Importance
FCAA	Federal Clean Air Act
FCAAA	Federal Clean Air Act Amendments of 1990
FESA	Federal Endangered Species Act
FFF	Fish Friendly Farming Certification Program
FIP	Federal Implementation Plan
FMMP	Farmland Mapping and Monitoring Program
FPPA	Farmland Protection Policy Act
FPRs	Forest Practice Rules
FREFs	fabric reinforced earth fills
General Permit	General Waste Discharge Requirements
GHG	greenhouse gases
GIS	geographic information system
GWP	Global Warming Potential
HCFCs	hydrochlorofluorocarbons
HFCs	hydrofluorocarbons
IPM	integrated pest management
LCFS	Low-Carbon Fuel Standard
MBTA	Migratory Bird Treaty Act
MMT	million metric tons
MPH	miles per hour
MPOs	Metropolitan Planning Organizations
MST	Milliken-Sarco-Tulocay
MT	metric tons
N_2O	nitrous oxide

NAAQS	national ambient air quality standards
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NMFS	National Marine Fisheries Service
NOA	naturally occurring asbestos
NOI	Notice of Intent
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NPS program	nonpoint source pollution control program
NRHP	National Register of Historic Places
NSPS	New Source Performance Standards
NVRR	Napa Valley Railroad
OAP	ozone attainment plans
OPR	Office of Planning and Research
PBES	Planning, Building, and Environmental Services
PFCs	perfluorocarbons
PM	particulate matter
PM_{10}	Fine particulate matter
Porter-Cologne	Porter-Cologne Water Quality Control Act
ppb	parts per billion
ppm	parts per million
PRC	Public Resources Code
PUC	Public Utilities Commission
RC	residential country
RCD	Resource Conservation District
RCPA	Regional Climate Protection Authority
RNHA	Regional Housing Needs Allocation
ROG	reactive organic gases
ROG	reactive organic gases
RR	rural residential
RTP	Regional Transportation Plan
SAA	Streambed Alteration Application
SCAQMD	South Coast Air Quality Management Districts
SCS	Sustainable Communities Strategy
SF_6	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin

SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District's
SSC	Species of Special Concern
SWPPP	Storm Water Pollution Prevention Plan
TAC	toxic air contaminant
TCP	Timberland Conversion Permit
the Project area	Napa River Watershed and the Sonoma Creek Watershed
The Project	General Permit
THP	Timber Harvesting Plan
TMDLs	Total Maximum Daily Loads
TPA	Timberland Productivity Act
TPZs	Timberland Production Zones
U.S. EPA	U.S. Environmental Protection Agency
UCMP	University of California Museum of Paleontology
USACE	U.S. Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VESCO	Vineyard and Orchard Site Development Ordinance
Water Board	San Francisco Bay Regional Water Quality Control Board
WDRs	waste discharge requirements
WQC	water quality certification

EXECUTIVE SUMMARY

Introduction

The San Francisco Bay Regional Water Quality Control Board (Water Board) prepared this Draft Environmental Impact Report (EIR) to assess potential environmental effects that may result from actions taken to comply with the proposed General Waste Discharge Requirements for Vineyard Properties located in the Napa River and Sonoma Creek watersheds (General Permit). For the purpose of this EIR and the General Permit, the term "vineyard property" includes the vineyard facility as well as adjacent parcels under the same ownership, and all roads located throughout the property. The "vineyard facility" is defined by the permanent, semi-permanent, or temporary physical features of a vineyard, such as land, crops, drainage systems, roads, reservoirs, water diversion structures/equipment, etc., that are established or maintained for the purpose of growing grapes. Throughout this document, the adoption and implementation of the General Permit will be referred to as the "proposed project" or "project."

The proposed General Permit would regulate discharges from vineyard properties located in the Napa River and Sonoma Creek watersheds. These watersheds contain an estimated 162,000 acres of vineyard properties, with 59,000 acres planted in grapes, from which there are or may be discharges of sediment and concentrated storm runoff that affect water quality. Most vineyard properties, where 5 acres-or-more are planted in wine grapes, would be required to enroll in the proposed General Permit. Based on GIS analysis, Water Board staff estimates that vineyard properties totaling about 109,000 acres, and including as many as 54,000 acres that are planted in wine grapes, could be regulated under the proposed Water Board General Permit (Appendix A). The General Permit would regulate discharges from vineyard properties to achieve discharge performance standards for sediment and storm runoff set forth in the Napa River and Sonoma Creek sediment Total Maximum Daily Loads (TMDLs) in the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan), and control pesticide and nutrient discharges. Achieving the performance standards for discharge ultimately would meet the load allocations identified in the sediment TMDLs adopted for the Sonoma Creek and the Napa River watersheds.

The proposed General Permit would establish a regulatory mechanism, in the form of general waste discharge requirements, to regulate sediment discharges, reduce erosion, and to attenuate significant increases in storm runoff from existing and future vineyard properties in the Napa River and Sonoma Creek watersheds. The General Permit contains prohibitions, specifications, and general procedures to protect surface water and groundwater related to vineyard operations.

Vineyard property owners/operators (Dischargers) required to enroll in the General Permit would:

- Submit a Notice of Intent (NOI) and pay required fees to the Water Board
- Develop a Farm Water Quality Protection Plan (Farm Plan)
- Implement and maintain best management practices (BMPs) and other improvements as specified in the Farm Plan to meet the requirements of the General Permit
- Conduct BMP and/or water quality monitoring
- Submit Compliance reports to the Water Board

The Water Board would review the NOI to confirm that the vineyard property meets all of the terms and conditions of the General Permit.

The General Permit is consistent with the State Water Resources Control Board's 2004 Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy), which requires that all sources of nonpoint source pollution that could affect water quality be regulated through waste discharge requirements (WDRs), waivers of WDRs, and/or prohibitions. The General Permit also is consistent with requirements contained in the Basin Plan, including the TMDLs completed for sediment in the Napa River and Sonoma Creek.

For the purpose of this EIR and General Permit, a "landowner/operator" is defined as a landowner and/or operator of a vineyard property meeting the size and slope thresholds in the General Permit in the Napa River or Sonoma Creek watersheds.

Project Objectives

The fundamental project objective is as follows:

- To implement the Napa River and Sonoma Creek sediment TMDLs including achievement of vineyard property discharge performance standards for sediment and storm runoff, and ultimately to meet the TMDLs' sediment allocations and targets as needed to restore properly functioning substrate conditions in channel reaches that provide habitat for anadromous salmonids.

Secondary project objectives include the following:

- To control discharges of sediment and/or storm runoff from vineyards into channel reaches that provide habitat for other native fishes
- To promote stream-riparian habitat protection and restoration
- To promote actions to restore fish passage at road crossings and streamflow diversions
- To promote management decisions and actions to maintain adequate in-stream temperature, and
- To encourage voluntary conservation programs to assist vineyard owners/operators in meeting the requirements and objectives of the General Permit.

Summary of Impacts and Mitigation Measures

The EIR identifies that the direct and indirect impacts of the General Permit are primarily related to the reasonably foreseeable methods, or BMPs, that vineyard property owners/operators may construct or install and maintain to comply with the General Permit. Because the General Permit would apply to both existing vineyard properties as well as new vineyard properties that might in the future enroll for coverage under the General Permit, this EIR also assesses the impacts that would occur from a new operation's compliance with the General Permit.

Potential environmental impacts of the project are summarized in Table ES-1. Refer to chapters 4 through 9 in this EIR for a complete discussion of each impact.

Table E-1: Summary of Impacts, Mitigation Measures, and CEQA Findings for the Action Alternatives

Chapter	Resource Category	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
4	**Agriculture and Forestry**			
	Impact 4.1: Compliance with the General Permit is not expected to result in conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. Direct impacts are less than significant because: a) BMPs that may be employed in farming areas to comply with General Permit performance standards for discharge already have been implemented at many properties throughout the project area (prior to development of the proposed project), and they have been found to be compatible with farming operations and don't require a significant reduction in the footprint of the farm and/or production; and b) BMPs that would be implemented on unpaved roads will result in an overall reduction in road maintenance costs. Indirect impacts are less than significant. Under CEQA, economic or social effects of the project shall not be treated as significant effects on the environment. (Cal. Code Regs., tit. 14, § 15131.). Only physical changes to the environment can be considered significant and there must be a chain of cause and effect from economic or social changes to physical changes. Historic and future trends in vineyard development shows that from 1958 to 2004, vineyard acres in the Napa Valley increased four-fold (approximately 10,000 to over 40,000 acres) and are predicted to increase by an additional 8,000 acres within the 10-year period following adoption of the General Permit. The historic trends in growth, which have spanned several decades of cyclical market forces, challenges from vine pests, and increased operating costs associated with increased regulatory requirements, for example, have not led to conversions of prime Farmland to non-agricultural uses or slowed agricultural growth.	None required. Direct and indirect impacts are less than significant.	LS	NA

Chapter	Resource Category	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
4	**Agriculture and Forestry (cont.)**			
	Impact 4.2: Compliance with the General Permit at Vineyard Properties would not conflict with existing zoning for agricultural use, or a Williamson Act contract. Compliance actions under the General Permit would not require a change in existing zoning for agricultural use, or a Williamson Act contract. Implementation of vineyard BMPs to comply with the General Permit would not conflict with existing agricultural zoning or any aspect of a Williamson Act contract because General Permit compliance will not materially change the primary agricultural activity on the parcels that benefit from Williamson Act contracts. As described above under discussion of Impact 4.1, compliance with the General Permit will not result in any amount of land permanently converted or committed to urban or other nonagricultural uses and were shown as agricultural land on Important Farmland Series maps maintained by the Department of Conservation (California Department of Conservation, 2004).	None required. Direct and indirect impacts are less than significant.	LS	NA
	Impact 4.3. Compliance with the General Permit would not conflict with existing zoning for, or cause, re-zoning of, forest land or timberland, or timberland zoned as Timberland Production. No authority to discharge under the General Permit would be allowed if BMP selection and construction results in a loss of forest land to non-forest use.	None required. No impact.	NI	NA

Chapter	Resource Category	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
4	**Agriculture and Forestry (cont.)**			
	Impact 4.4. **Compliance with the General Permit is not expected to result in the loss of forest land or conversion of forest land to non-forest use.** If compliance with the General Permit would involve conversion of forest lands, there is no authority to discharge under the General Permit.	None required. No impact.	NI	NA
	Impact 4.5. Compliance with the General Permit is not expected to 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. Compliance with the General Permit would not result in conversion of significant portions of farmland to non-agricultural use or conversion of forest land to non-forest use because a) no authority to discharge under the General Permit would be granted if BMP selection and construction results in the loss of forest land or the conversion of forest land to non-forest use, and b) actions undertaken to comply with the General Permit (e.g., construction of sheds, pipes, trash racks, culvert replacement, road work, etc.), would be compatible with existing vineyard facility operations, throughout the Project Area.	None required. No impact.	NI	NA

Chapter	Resource Category	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
5	**Air Quality**			
	Impact 5.1: Compliance with the General Permit could conflict or obstruct implementation of the applicable air quality plan. Compliance actions (e.g., construction of BMPs that involve earth moving) completed at Vineyard Properties throughout the project area may have the potential to conflict with implementation of an applicable air quality plan. The primary pollutant of concern is PM_{10} - fine particulate matter. Also, at some Vineyard Properties, BMP construction that involves earth-moving may have the potential to entrain naturally occurring asbestos.	**AQ-1 Basic Criteria Pollutant Emission Control Measures** • Water all active construction areas at least twice daily. • Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard. • Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites. • Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites. • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets. **AQ-2 Enhanced Criteria Pollutant Emission Control Measures** • All "Basic" control measures listed above. • Hydro-seed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more). • Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.). • Limit traffic speeds on unpaved roads to 15 mph. • Install sandbags or other erosion control measures to prevent silt runoff to public roadways. Replant vegetation in disturbed areas as quickly as possible.	S	SU*

Chapter	Resource Category	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
5	**Air Quality**			
	Impact 5.1 (cont.) *Description as provided above*	**AQ-3 Optional Criteria Pollutant Emission Control Measures**: • Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site. • Install wind breaks, or plant trees/vegetative wind breaks at windward side(s) of construction areas. • Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph. • Limit the area subject to excavation, grading and other construction activity at any one time. **AQ-4 Naturally-Occurring Asbestos Emission Reduction Control Measures:** • Comply with the BAAQMD NOA program and ARB ATCM 93105. The Water Board would not have oversight of the implementation of proposed mitigation measures. Therefore, <u>we conservatively find that the impacts remain significant and unavoidable</u>.	S	SU*

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
5	Air Quality (cont.)			
	Impact 5.2 – Compliance with the General Permit could violate air quality standards or contribute substantially to an existing or projected air quality violation. Compliance actions (e.g., construction of BMPs that involve earth moving) completed at Vineyard Properties throughout the project area could violate air quality standards or contribute substantially to an existing or projected air quality violation. The primary pollutant of concern is fine particulate matter.	See Mitigation Measures AQ-1 through AQ-4, above. For the reasons stated above, the impacts remain significant and unavoidable.	S	SU*
	Impact 5.3 - General Permit compliance does not have the potential to result in cumulatively considerable net increases of any non-attainment pollutant for which the project region is under an applicable federal or State ambient air quality standard. The General Permit will not result in new land uses, housing, or other uses that would generate sustained air emissions. Compliance with the General Permit would not result in the permanent installation of stationary engines such as diesel-fueled motors and therefore would not permanently increase emissions from Vineyard Property operations. The General Permit does not propose land uses that are inconsistent with the current land use designation in the Sonoma County and Napa County general plans. Furthermore, General Permit compliance projects would be consistent with the 2001 Bay Area Ozone Attainment Plan and the 2000 Bay Area Clean Air Plan. Therefore, the Project would not result in a cumulatively considerable net increase in any criteria pollutant. This would be a less than significant impact.	None required.	LS	NA

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
5	Air Quality (cont.)			
	Impact 5.4 - Compliance with the General Permit may have the potential to expose sensitive receptors to substantial pollutant concentrations. Emissions of diesel particulate matter (DPM) can occur from diesel-fueled equipment used for construction activities in compliance with the requirements of the General Permit. Although diesel-operated equipment such as tractors and trucks are routinely used at vineyard facilities as part of normal operations, large construction projects, such as road reshaping/repair and/or detention basin construction, could last several weeks and therefore possibly result in increases in short-term diesel emissions above baseline conditions. CARB has identified a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. Vineyard Properties enrolled under the General Permit are located within a Project area of approximately 600 square miles and residential uses in these agriculturally-zoned districts are very low density. Although vineyards are generally located in rural areas, given the sheer size of the Project area, it is possible some vineyard properties may be located near schools, hospitals, and other sensitive land uses. Although compliance with the General Permit should not result in construction or operation of new, stationary sources of air emissions, construction undertaken to implement the requirements of the General Permit could result in increases in particulates in the air in the immediate vicinity of the grading and construction operation, and could thus expose sensitive receptors to substantial pollutant concentrations. This impact would be significant.	See Mitigation Measures AQ-1 through AQ-4, above. For the reasons stated above, the impacts remain significant and unavoidable.	S	SU*

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
5	Air Quality (cont.)			
	Impact 5.5 - Compliance with the General Permit will not create objectionable odors affecting a substantial number of people. In general, the types of land uses that pose potential odor problems include refineries, chemical plants, wastewater treatment plants, landfills, composting facilities, and transfer stations. No such uses are proposed by the General Permit.	None required. Direct and indirect impacts are less than significant.	LS	NA
	Impact 5.6: Generation of Short-Term Construction-Related GHG Emissions from Linear BMPs. Based on the assumptions and data input into the Road Construction Emissions Model, If >1.6 miles of road (e.g., the largest linear construction feature) is excavated in any given year, the project would exceed the threshold for impact with regard to GHG emissions. Throughout the Project Area at vineyard properties that would be enrolled in the permit, about 200 miles of unpaved roads could be out-sloped over a 10-year period. Therefore, on average 200 mi/10 yr, or about 20 miles of road per year could be excavated to comply with the road sediment discharge performance standard, which is much greater than the threshold for impact.	Examples of recognized and accepted mitigation measures include: • <u>Require Use of Newer Construction Equipment.</u> Construction equipment with newer engine models is subject to stricter emissions standards, and would generate less GHG emissions. • <u>Require Use of Equipment Powered by Electricity.</u> Some types of equipment can be powered by either diesel fuel, electricity, or a hybrid. Use of equipment powered by electricity or a hybrid would generally generate less GHG emissions. • <u>Require Use of Equipment Powered by Alternative Fuels.</u> Some types of equipment can be powered by alternative fuels (i.e., not diesel fuel). Use of alternative fuels would generally generate less GHG emissions.	S	SU*

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
5	Air Quality (cont.)			
	Impact 5.7 - Generation of short-term construction-related GHG emissions from a non-linear construction feature BMP implementation in farmed areas, as compared to the baseline, would decrease tillage and excavation. BMP implementation along existing unpaved roads is linear. The only large non-linear BMP would be a detention basin, which could be constructed at some existing vineyard properties where the vineyard replaced a forest. In these cases, typically the detention basin could require about 3 percent of the vineyard area. California Dept. of Forestry records document about 450 acres of timber conversion plans were processed over the past 17 years. We also are aware of increasing trends in forest cover within the historical period (early 1940 to present) (SFEI, 2003a and 2003b). Assuming very conservatively that the total historical conversion for vineyards within the project area is as large as 2000 acres (more than four times the amount during the past 17 years), then 135 acres would have to be excavated for detention basins and this would occur over a 10-year period, for an average of about 14 acres of construction per year, which would generate much less than 1100 metric tons of CO_2 per year, which is the significance threshold for GHG impacts. Based on the above analysis, we conclude that the impact is less than significant.	None required. Direct and indirect impacts are less than significant.	LS	NA

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
5	Air Quality (cont.)			
	Impact 5.8 - Generation of long-term operational (e.g., BMP maintenance) GHG emissions from maintenance of all BMPs Threshold of significance is > 735 additional vehicle trips/day occurring at properties implementing BMPs to comply with the General Permit. For the Permit to exceed this threshold, a new BMP maintenance task that was event-related would have to occur at nearly all properties enrolled, and all would have to occur on the same day. The most likely scenario would be inspection and/or emergency repairs of BMPs during or soon after a large storm. Although this is a plausible scenario for estimating the maximum number of vehicle trips related to BMP maintenance, under the baseline, these types of storm-related inspections of BMPs in farm areas and/or roads are typical at sites vulnerable to erosion. New BMPs in these areas, presumably if they are at least as effective, would not result in > 735 new (additional) vehicle trips per day (even during a storm event).	None required. Impacts are less than significant.	LS	NA

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
6	Biological Resources			
	Impact 6.1a: Compliance with the General Permit may cause substantial adverse effects, either directly or through habitat modifications, to some species identified as a candidate, sensitive, or special status species. Aquatic and/or riparian special-status species - Compliance with the General Permit, over the long-term, would substantially reduce fine sediment delivery to channels, attenuate storm runoff from vineyards and roads, and increase the extent of riparian vegetation, which would substantially enhance the quality of spawning and rearing habitat for salmon and steelhead, native resident fish species, and also the quality of stream and/or riparian habitats available for wildlife species. However, the actual construction of BMPs within vineyards, roads, and/or eroding channels and gullies at multiple locations throughout hundreds of vineyard properties could have short-term adverse impacts on streambeds, riparian habitat, fish, and wildlife. These impacts if not addressed through construction activity controls could be significant.	**Mitigation Measure BR-1** (Clean Act 401 permit): At all construction sites that overlap with waters, wetlands, and/or riparian areas, dischargers shall be required to apply for a Clean Water Act Section 401 permit and comply with requirements thereof which would include reducing potential impacts to all special-status fish and aquatic wildlife species, and all riparian-dependent wildlife species to a less than significant level. **Mitigation Measures BR-2 through BR-8** (construction activity controls): These mitigation measures include measures to: control or restrict the timing of construction; require construction site management; control erosion during and following construction; limit where and when heavy equipment can be used; limit earth moving; limit vegetation disturbance; and require replanting of native vegetation. **Upon implementation of Mitigation Measures BR-1 through BR-8**, all potential impacts to aquatic and riparian special-status species would be reduced to a less than significant level.	S	LS

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
6	Biological Resources (continued)			
	Impact 6.2: Compliance with the General Permit may have the potential to have a substantial adverse effect on riparian habitat, or other sensitive natural community. The Water Board has regulatory authority to protect sensitive natural communities that are aquatic or riparian in nature (see 6.1 above) There exists the possibility however, that some BMPs may need to be constructed and/or maintained in previously undisturbed upland areas that may overlap with sensitive natural communities. The Water Board would not have oversight of the implementation of proposed mitigation measures required to protect sensitive natural communities located in upland areas, unrelated to protection of water quality or beneficial uses.	See **Mitigation Measures BR-1 through BR-8** above. Upon implementation of these measures, potential impacts to riparian habitat and sensitive natural communities that are aquatic in nature would be less than significant. **See Mitigation Measure BR-11**. For the reasons stated above, the Water Board would have to rely on other regulatory agencies to implement this measure. Therefore, the EIR finds conservatively that potential impacts to sensitive natural communities in upland area remain significant and unavoidable.	S	SU*

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
6	Biological Resources (continued)			
	Impact 6.3: Compliance with the General Permit would not have the potential to have a substantial adverse effect on federally protected wetlands.	See **Mitigation Measures BR-1 through BR-8** above.	S	LS
	Impact 6.4: Compliance with the General Permit would not have the potential to 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 native wildlife nursery sites. The only compliance actions that could impact fish and/or wildlife migration would be decommissioning a problem road segment (BMP-19) or construction of a new storm-proofed road segment (BMP-20). However, these actions would be subject to performance standards for discharge under the General Permit, such that they achieve CA Fish and Wildlife and NOAA Fisheries criteria for fish passage, and also these actions would be subject to Mitigation Measure BR-1 (above). Potential impacts are less than significant with mitigation.	See **Mitigation Measures BR-1 through BR-8** above.	S	LSM

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
6	Biological Resources (continued)			
	Impact 6.5: Compliance with the General Permit would not have the potential to conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance. BMP construction and maintenance at existing farms and unpaved roads will be almost always confined within these highly disturbed areas. Also, as described in Impact 4.4 above, if compliance with the General Permit would involve conversion of forest lands, there is no authority to discharge under the General Permit. In a few cases, BMP construction and/or maintenance would occur in previously undisturbed upland areas, which may include construction of a stormwater detention basin and/or relocation of problematic road reach. These actions would not conflict with local policies or ordinances protecting biological resources because in all cases, these projects would be subject to discretionary permits from Napa and/or Sonoma County (as applicable) that would be conditioned to avoid potential conflicts with local policies and/or ordinances that protect biological resources.	None required. Impacts are less than significant.	LS	NA

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
6	Biological Resources (continued)			
	Impact 6.6: Compliance with the General Permit would not have the potential to conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan.	Not aware of any potential conflicts.	LS	NA
Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
7	Cultural Resources			
	Impact 7.1- Compliance with the General Permit may have the potential to cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5 Construction may occur in stream channels where nineteenth century and/or early twentieth century rock walls or Civilian Conservation Corps (CCC) erosion control structures (e.g., stream bank or bed stabilization structures, check-dams, detention basins, etc.) are present, however, erosion control practices required under the General Permit are not likely to result in substantial adverse alteration of these features. Grading and construction usually would occur in vineyards and on roads that have been previously disturbed by recent agricultural human activity, not at, or in areas containing historical resources as defined by section 15064.5 of the CEQA Guidelines.	None required. Impacts are less than significant.	LS	LS

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
7	Cultural Resources (continued)			
	Impact 7.2 - Compliance with the General Permit may have the potential to cause a substantial adverse change in the significance of archaeological resource. Actions to comply with the General Permit could involve both minor and larger-scale grading and construction. Large scale construction would generally be limited to road relocation, detention basin/managed wetland construction, and culvert replacement. Management practices such as modification of road drainage and measures to control erosion from the planted area and at points of discharge would generally be small in scale, and would be limited to shallow excavation. As noted above, however, in some cases, deeper excavation may be necessary to construct detention basins, relocate a road segment, and/or replace a road crossing and culvert. In some locations, such as near streams and at the base of hills, archaeological resources could be encountered.	**Mitigation Measure CR 7-2** Recognized and accepted measures routinely required by regulatory agencies include: a. Perform a cultural resources survey by a qualified archaeologist or cultural specialist that conforms to the U.S. Secretary of the Interior's Professional Qualifications Standards, as published in 36 Code of Federal Regulations; b. Contact the State Historic Preservation Officer and federal lead agencies as appropriate for coordination of Nation-to-Nation consultations with the Native American Tribes; c. Consult a qualified paleontological resources specialist to determine whether paleontological resources would likely be disturbed in a project area on the basis of the sedimentary context of the area and a records search for past paleontological finds in the area. The assessment may suggest areas of high or known potential for containing resources. If the assessment is inconclusive, a surface survey is recommended to determine the fossil potential and extent of the pertinent sedimentary units within the project site. If the site contains areas of high potential for significant paleontological resources and avoidance is not possible, prepare a paleontological resources mitigation plan; d. Consult established archaeological and historical records and conduct a field survey of the project prior to construction. Survey records shall be filed with the appropriate archaeological or historical data centers; e. Consult with local Native American representatives as appropriate to obtain local knowledge of the project vicinity; f. Prepare site development and grading plans that avoid disturbance of known cultural sites and/or documented sensitive areas. Project plans shall include appropriate measures to protect sensitive resources;	S	SU*

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
7	Cultural Resources (continued)			
	Impact 7.2 - Compliance with the General Permit may have the potential to cause a substantial adverse change in the significance of archaeological resource (cont.) *See description on previous page*	**Mitigation Measure CR 7-2** Recognized and accepted measures routinely required by regulatory agencies include (cont.): g. Retain a qualified archaeologist or Native American representative to monitor site development activities, particularly grading and trenching. If artifacts are observed during construction, require that construction be halted until a qualified archaeologist has been consulted; h. Alert onsite workers to the possibility of encountering human remains during construction activities, and prepare appropriate procedures. It is usually required that all construction activities near the location of identified human skeletal remains are halted until proper consultation and mitigation is arranged. The Water Board would not have oversight of the implementation of proposed mitigation measures required to protect cultural resources. Because authority to require project-level mitigation lies with the local land use authority, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented. <u>Therefore the EIR conservatively finds that impacts to cultural resources remain significant and unavoidable.</u>	S	SU*
	Impact 7.3: Compliance with the General Permit may have the potential to directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature. For the reasons stated in impact 7.2, this impact may have the potential to be significant.	**See Mitigation Measure CR 7-2** <u>For the same reasons as stated above, per Impact 7.2, the EIR conservatively finds that impacts to paleontological resources and unique geologic features remain significant and unavoidable.</u>	S	SU*

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
7	Cultural Resources (continued)			
	I**mpact 7.4: Compliance with the General Permit may have the potential to disturb human remains, including those interred outside formal cemeteries.** For the reasons stated in impact 7.2, this impact may have the potential to be significant.	**See Mitigation Measure CR 7-2** <u>For the same reasons as stated above, per Impact 7.2, the EIR conservatively finds that impacts to human remains are significant and unavoidable.</u>	S	SU*
Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
8	Hydrology			
	Impact 8.1: Compliance with the General Permit would enhance water quality in the Napa River and Sonoma Creek. The project establishes General Waste Discharge Requirements for vineyard properties to attain and/or maintain water quality standards.	None required. Impacts are less than significant.	NI	NI
	Impact 8.2: The overall effect of actions taken to comply with the General Permit would be beneficial, potentially enhancing groundwater recharge Compliance with the General Permit including its performance standards for storm runoff from hillslope vineyards and hydrologic connectivity of roads will reduce storm runoff, and therefore, contribute to enhancement of groundwater recharge.	None required. Impacts are less than significant.	NI	NI

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
8	Hydrology (continued)			
	Impact 8.3: Actions taken to comply with the General Permit would result in a beneficial reduction in storm runoff. See discussion of impact 8.2	None required. Impacts are less than significant.	NI	NI
	Impact 8.4: Actions taken to comply with the General Permit would over the long-term, result in beneficial reductions in erosion and siltation to the Napa River, Sonoma Creek, and to their tributaries. Long-term effects: The General Permit requires actions to control sediment discharges and storm runoff increases from farms and roads, toward the goal of achieving 50 percent reductions in sediment delivery to channels within vineyard properties in the Napa River and Sonoma Creek watersheds as called for in the sediment TMDLs. At a minimum, the EIR conservatively estimates that sediment savings over the long-term as a result of farm plan implementation actions would reduce sediment delivery to channels by approximately 33,000 metric tons per year. Short-term effects: Although the long-term effect of General Permit compliance would be a substantial reduction in delivery of sand and finer sediment to stream channels, short-term erosional adjustments could occur at some BMP construction sites, which could cause eroded sediment could be deposited in stream channels that support sensitive and/or listed aquatic species, and these potential short-term and temporary increases in fine sediment delivery to channels are considered a **significant impact**.	**Mitigation Measures BR-2 through BR-8** (construction activity controls): These mitigation measures include measures to: control or restrict the timing of construction; require construction site management; control erosion during and following construction; limit where and when heavy equipment can be used; limit earth moving; limit vegetation disturbance; and require replanting of native vegetation. Upon implementation of BR-2 through BR-8, potential short-term construction-related erosion and sedimentation impacts would be reduced to a less than significant level. The overall effect of the project on erosion and sedimentation would be a beneficial reduction in erosion and siltation.	S	LS

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
8	Hydrology (continued)			
	Impacts 8.5: Compliance with the General Permit would not adversely impact dissolved oxygen concentration and/or maintenance and/or restoration of tidal marshes in San Pablo Bay. In response to the Notice of Preparation, the Farm Bureau commented that impacts of reduced sediment supply to San Pablo Bay (SPB) should be evaluated including: a) the possibility that reduced suspended sediment concentrations in SPB could cause an increase in phytoplankton growth, decreased dissolved oxygen, and fish kills; and b) the possibility that reduced sediment supply to San Pablo Bay could impair maintenance and/or restoration of tidal wetlands. In response, the EIR notes that although compliance with the General Permit would reduce land-use related sediment supply from vineyard properties by as much as 50 percent, even after this and all other actions called for in both TMDLs are implemented, sediment supply from the Napa River and Sonoma Creek still would remain at approximately 125% of natural background. Also, climate change models for California predict much larger and more frequent floods (Dettinger and Ingram, 2013), which would be expected to increase natural sediment supply substantially as compared to the historical period.	None required. Impacts are less than significant.	LS	LS

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
8	Hydrology (continued)			
	Impacts 8.5: Compliance with the General Permit would not adversely impact dissolved oxygen concentration and/or maintenance and/or restoration of tidal marshes in San Pablo Bay (cont.) Sediment delivery from natural processes to SPB will remain highly variable and will be controlled primarily by the frequency of wet and dry periods of years, and also natural disturbance events. Under current conditions, tidal marshes along SPB are maintaining their positions or expanding, and diked former wetlands recently reconnected to tidal exchange are experiencing healthy rates of sediment deposition and are expected to be restored to tidal wetlands. The TMDLs maintain sediment supply above the natural background rate, which will vary substantially in future years based on factors unrelated to the General Permit. Nutrient loading to SPB is substantially elevated, and this is the primary driver for potential depletion of dissolved oxygen (should this become a problem), not the return to more natural rates of sediment discharge from the Napa River and Sonoma Creek to SPB. In summary, actions to control land-use related sediment supply to the Napa River and Sonoma Creek, as needed to enhance spawning and rearing habitat for natives fish and aquatic wildlife species in freshwater stream reaches would have a less than significant impact on dissolved oxygen concentration in SPB and/or on maintenance and/or restoration of tidal marshes.	None required. Impacts are less than significant.	LS	LS

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
8	Hydrology (continued)			
	Impact 8.6: General Permit compliance actions would not cause the capacity of a stormwater drainage system to be exceeded. The overall effect of compliance actions on storm runoff would be a beneficial and substantial decrease in storm runoff peak from vineyard properties. Therefore, compliance actions would not cause additional runoff water which could exceed the capacity of a stormwater drainage system.	No impact	NI	NI
	Impact 8.7: General Permit compliance actions would not increase polluted runoff and/or degrade water quality. The project establishes Waste Discharge Requirements for vineyard properties to attain or maintain water quality standards. The effect of the project on attainment of water quality will be beneficial.	N/A	NI	NI
	Impact 8.8: General Permit compliance actions would not affect placement of housing in flood hazard areas. The General Permit does not affect placement of housing. There is no impact.	N/A	NI	NI

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
8	Hydrology (continued)			
	Impact 8.9: General Permit compliance actions would not impede or redirect flood flows. Two types of compliance actions involve placement of fill in channels: a) storm-proofing road crossing over channels; and b) soil bioengineering projects to control erosion in gullies and/or stream channels. Storm-proofing includes upgrading the road crossing to convey the 100-year peak flow. Therefore, where undersized or failing culverts are located in flood hazard areas, the effect of actions taken to comply with the General Permit would be beneficial (to reduce flooding). Soil bioengineering projects would only be constructed in channels or gullies located on hillslope vineyard properties, none of which overlap with defined flood hazard areas. Therefore, the project would not impede or redirect flood flows in a flood hazard area.	No impact	NI	NI

Chapter	Impact	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
8	Hydrology (continued)			
	Impact 8.11: General Permit compliance actions would not expose people or structures to risk of loss, injury, or death by inundation from a seiche, tsunami, or mudflow. Actions taken to comply with the General Permit would not affect the location of people or structures as related to risk of loss, injury, or death involving inundation from a seiche, tsunami, or mudflow. The project would not cause an impact.	N/A	NI	NI

Key: S –significant; LS – less than significant; NI – no impacts; LSM – less than significant with mitigation incorporated; SU – significant and unavoidable; * Where marked with an asterisk, the Water Board would not have oversight of the implementation of proposed mitigation measures (e.g. air quality); in those cases we conservatively find that the impacts remain significant and unavoidable.

Areas of Controversy

The General Permit was developed with input from stakeholders. On July 23, 2014, the Water Board held a public scoping meeting for the Environmental Impact Report, during which the public was asked to comment on specific topics that they felt should be discussed in the environmental analysis. The following issues were expressed in comment letters and comments provided during the meeting:

- Concerns on the effects of the General Permit on agricultural resources, specifically that any added regulation may lead to conversion of agricultural lands to non-agricultural uses.
- Concerns regarding the costs of BMP implementation and requests that the environmental review includes a cost evaluation and identify funding sources to defray expenses.
- Concerns with the efficiency and feasibility of the implementation of the General Permit in light of the existing local, vineyard regulatory programs, and third-party efforts.
- Concerns over the acreage threshold of the proposed General Permit with recommendations to limit the Permit to vineyards versus vineyard properties, exclude large property parcels with few acres planted but many miles of roads, and to focus the permitting effort on high erosion potential problem areas.
- Concern over the impact of reduced sediment to San Pablo Bay on phytoplankton growth, and maintenance and restoration of tidal wetlands.
- Concerns over including the nutrient and pesticide stormwater performance standards in the General Permit.
- Concerns that the EIR provides a complete assessment of habitats, flora and fauna within and adjacent to the Project area.
- Concern that the environmental review includes evaluation of voluminous comments previously submitted on the Policy for Maintaining Instream Flow in Northern California Coastal Streams (February 2014), and the Napa River sediment TMDL Basin Plan amendment, including an evaluation of groundwater resources.

Issues to be Resolved

CEQA Guidelines Section 15123(b)(3) requires identification of “issues to be resolved, which in this case includes the Water Board making a choice among project alternatives, and also making decisions regarding whether and how to mitigate significant impacts of actions taken to comply with the proposed general Permit.

Alternatives

The purpose of the alternatives analysis in an EIR is to describe a range of reasonable alternatives to the project that could feasibly attain the objective of the project, and to evaluate the comparative merits of the alternatives (CEQA Guidelines, §15126.6, subd. (a).). Additionally, CEQA Guidelines section 15126.6. subd. (b) requires consideration of alternatives that could avoid or substantially lessen any significant adverse environmental effects of the proposed project, including alternatives that may be more costly or could otherwise impede the project’s objectives, and the No Project Alternative. The

range of alternatives considered must include those that offer substantial environmental advantages over the proposed project and may be feasibly accomplished in a successful manner considering economic, environmental, social, technological and legal factors. Six alternatives suggested through comment on the Notice of Preparation (for details, see Section 10.2), all of which would have significantly reduced the scope of required erosion control actions were rejected because it is unlikely that they would achieve the fundamental objective of the proposed General Permit, which is:

- To implement the Napa River and Sonoma Creek sediment TMDLs including achievement of vineyard property discharge performance standards for sediment and storm runoff, and ultimately to meet the TMDLs' sediment allocations and targets as needed to restore properly functioning substrate conditions in channel reaches that provide habitat for anadromous salmonids.

The following alternatives were selected for analysis, and evaluated as discussed in in Chapter 10:

- **Alternative 1: No Project Alternative.** Under the No Project Alternative, the Water Board would not develop a General Permit for vineyard properties within the Project area. Absent adoption of the proposed General Permit, it is unlikely that its fundamental objective, which is to meet the TMDLs' sediment allocations and targets, and restore properly functioning substrate conditions in channel reaches that provide habitat for anadromous salmonids, would be achieved by the deadlines specified in the TMDLS (i.e., Sonoma Creek, December 2028 and Napa River, September 2029). It is highly probable that sediment impairments in the Napa River and Sonoma Creek watersheds would not be resolved. Consequently, degraded streambed substrate conditions and spawning habitat and rearing habitat for endangered Steelhead populations and locally rare Chinook salmon populations would persist.
- **Alternative 2: Regulate Vineyard Properties where 10 acres-or-more are planted in wine grapes.** Under this alternative, the enrollment criteria would be relaxed to Vineyard Properties that include ≥10 acres planted vineyard. The relative scale of compliance actions to achieve the performance standards contained in the General Permit would be reduced. This alternative would enroll up to 60 percent of the total vineyard property acreage, and up to 85 percent of the planted acreage that occurs within the project area. As compared to the Proposed Project, this alternative would be anticipated to reduce both the amount of sediment discharge control, and also the magnitude of significant impacts by about 10 percent.
- **Alternative 3: Exempt vineyard properties located upstream of municipal reservoirs from the requirement to enroll in the General Permit.** This alternative is identical to the proposed project except that it would exclude those Vineyard Properties located above five municipal reservoirs[1] located in the Napa River watershed and thus reduce the project area within the Napa River watershed by approximately 83 square miles. The Sonoma Creek watershed Project area would remain unchanged. Although this alternative would achieve the fundamental objective of the proposed project, this alternative would not protect substrate channel conditions in channel reaches located upstream of these reservoirs and would therefore not achieve a secondary project objective. Impacts and sediment reduction benefits are about 20 percent less than under the Proposed Project.

[1] These reservoirs are Kimball Canyon Reservoir, Bell Canyon Reservoir, Rector Reservoir, Lake Hennessey, and Milliken Canyon Reservoir.

The alternatives analysis found that differences in impacts are directly correlated to the land area enrolled in the General Permit. The potential adverse impacts of the Proposed Project, Alternative 2 or Alternative 3, all would be similar because they all involve construction of the same types of BMPs; the primary differences being in the total land area and locations where the BMPs would be constructed. Under Alternative 3, approximately 20 percent of the proposed project area, or 20,000 acres, would be excluded from General Permit coverage. In simple terms, this reduction in project area could translate into a roughly 20 percent reduction in potential impacts.

What sets Alternatives 2 and 3 apart, is that Alternative 2 would not protect the beneficial uses associated with the reservoirs and/or the channel reaches draining into the reservoirs. Protection of beneficial uses of the waters of the State is the fundamental mission of the Water Board.

1. INTRODUCTION AND BACKGROUND

The proposed General Waste Discharge Requirements (General Permit) for vineyard properties in the Napa River and Sonoma Creek watersheds (Figure 2-1) would require actions to control sediment discharges and storm runoff increases from farms and roads, and also to control pesticide and nutrient discharges from farms. The General Permit also provides incentives for voluntary implementation of habitat enhancement actions in incised channel reaches. The draft General Permit is included as Appendix A. The potential environmental impacts of the General Permit are considered in this Environmental Impact Report (EIR).

The Napa River, Sonoma Creek, and their tributaries provide habitat for federally listed steelhead populations, locally rare Chinook salmon populations, and exceptionally diverse native fish assemblages (Leidy, 2007, pp. 50, 146-155, 157-158, and 192). Too much sand in streambeds and channel incision (the progressive lowering of the streambed as a result of erosion) are significant threats to fisheries in these watersheds (Water Board, 2008a, pp. 8-12; Water Board, 2009a, p. 21).

Channel incision is a significant fine sediment source, and the primary mechanism for habitat simplification in the Napa River, Sonoma Creek, and alluvial reaches of their tributaries. As channels have incised, spawning and rearing habitats have been substantially reduced. Channel incision also has separated the channels from floodplains, and reduced baseflow persistence and the extent and diversity of riparian vegetation (Stillwater Sciences and Dietrich, 2002).

The Water Board has listed the Napa River and Sonoma Creek as impaired by too much fine sediment and also by channel incision[2], and has developed sediment total maximum daily loads (TMDLs) and habitat enhancement plans to address these problems (Water Board 2008b, and Water Board, 2009b). Across both watersheds, the TMDLs require 50 percent-or-more reduction in human-caused sediment inputs. To achieve these reductions, the TMDL implementation plans list regulatory actions and schedules to achieve water quality objectives and restore beneficial uses. The TMDLs contemplate regulation of vineyard properties as a means to reduce sediment loads.

Vineyard properties, including farming areas and extensive unpaved roads, have been identified as significant sources of sand and finer sediment discharge to the Napa River, Sonoma Creek, and their tributaries (Water Board, 2008a, p. 43; Water Board, 2009a, p.57). Also, storm runoff increases generated by vineyards and roads have been identified as two of several causes for channel incision[3]

[2] Channel incision degrades habitat and it is a controllable water quality factor that results in non-attainment of the water quality objective for population and community ecology.

[3] Channel incision reflects and integrates multiple historical and ongoing disturbances including: a) direct alterations to the Napa River, Sonoma Creek, alluvial reaches of tributaries, and to their floodplains (e.g., levee building, channel straightening, side channel filling, connecting naturally disconnected tributaries, removal of debris jams, ditching and draining floodplain wetlands, historical gravel mining, and dredging); b) in the Napa River watershed, construction of four large tributary dams between 1939 and 1959 that capture runoff and coarse sediment delivered from approximately 20% of the watershed; and c) in both watersheds, land-cover changes that have increased peak flows in the river (e.g., vineyards, logging of old-growth redwood forests, rural residences, intensive historical grazing, commercial buildings, and roads) (Water Board, 2008, p.23; Water Board, 2009, p.46).

(Water Board, 2008a, pp. 23-24; Water Board 2009a, p. 39). Incised channel reaches are common where channels flow through alluvial valleys within vineyard properties and elsewhere in these same settings throughout the Napa River and Sonoma Creek watersheds (see, e.g., Water Board, 2009, pp. 49-50).

In addition to requiring actions to control storm runoff increases, the General Permit also would include incentives for Vineyard Property owners to voluntarily establish stream setbacks to facilitate passive restoration of stream-riparian habitat.[4] Impacts of channel incision also are being addressed through voluntary implementation of large-scale channel restoration projects, examples of which include the Rutherford Napa River restoration Project and the Oak Knoll to Oakville Restoration Project[5].

1.1. Existing Physical Conditions at Vineyard Properties in the Project Area

The background information provided below in Sections 1.1 through 1.3, together with the detailed descriptions of environmental setting contained in each of the resources chapters (Chapters 4 through 8) constitute the environmental baseline and setting for the project.

The Napa and Sonoma Valleys are two of the best places on earth to grow wine grapes. As a result, viticulture is the predominant form of agriculture in both watersheds. Vineyard properties constitute about 162,000 acres, or 40 percent of the total land area in the Napa River and Sonoma Creek watersheds (Appendix B, GIS Analysis). Vineyard properties include: a) 59,000 acres of planted wine grapes; b) farm avenues, buildings, and infrastructure; c) extensive networks of property-wide access roads (most of which are unpaved); and d) adjacent open-spaces under natural vegetation cover[6]. The 59,000 acres of planted wine grapes correspond to about 16 percent of the land area in these two watersheds. Based on GIS analysis, Water Board staff estimates that vineyard properties totaling about 109,000 acres, and including as many as 54,000 acres of planted wine grapes, could be regulated under the proposed Water Board General Permit (Appendix B).

Although there is a long history of wine grape cultivation in the Napa and Sonoma valleys that dates back to the mid-nineteenth century, most of the vineyard development in both watersheds has occurred since the early 1980s, soon after a Napa Valley Cabernet Sauvignon was judged the best red wine at the 1976 Paris Competition (San Francisco Chronicle, 2005; see also, Swinchatt and Howell, 2004, p. 2 and p. 8). Between 1970 and 1996, in the Napa River watershed, wine grape cultivation increased from about 10,000 acres to about 30,000 acres (Napa County RCD, 1997, as cited in Stillwater Sciences and Dietrich, 2002). At present, there are an estimated 45,000 acres of wine grapes planted in the Napa River watershed and 14,000 acres in the Sonoma Creek watershed (Appendix B).

---

[4] Passive restoration is defined by "the cessation of the management activities that are causing degradation or preventing recovery" (Kauffman, 1997). In incised channel reaches, passive restoration would involve voluntary establishment of stream setbacks wide enough to maintain or re-establish pool-riffle bedforms, and also an interconnected floodplain and riparian corridor. (See Appendix A)

[5] Other large-scale channel restoration projects along the Carneros and Bear Canyon creeks, which are tributaries to the Napa River, are being planned.

[6] In many cases, these adjacent open-spaces were/are managed for other uses including rural residential, livestock grazing, timber production, water supply, and/or recreation.

As hillslope vineyard development[7] began to become widespread beginning in the early 1980s, development and management practices at many sites did not recognize and/or address the potential for significant erosion. As a result, during the 1980s, erosion rates were very high-to-extreme at most hillslope vineyard sites (Soil Conservation Service, 1985, p. 1-6, 43-63). Public attention became focused on this problem during a large storm in 1989, when a hillslope vineyard collapsed into Bell Canyon Reservoir, threatening the water supply for the City of St. Helena (Poirier Locke, 2002, pp.31-32, 36, and 38). Soon thereafter, Napa County established an ordinance requiring erosion control plans and establishing stream setbacks to regulate the development of vineyards and other ground-disturbing activities on slopes greater than 5 percent. Sonoma County adopted a similar ordinance in 2000.

Following adoption of these local ordinances, and as a result of the technical assistance and outreach by local conservation agency staff, substantial progress has been made during the past few decades in controlling soil erosion within vineyards throughout the project area. Almost all hillslope and valley floor vineyards now plant cover crops prior to the start of the rainy season, and/or maintain no-till cover crops. Some valley floor sites have established vegetated filter strips and/or berms in-place that are effective in filtering sediment that erodes from the vineyards (Napolitano, 2008).

At some hillslope sites, the process of vineyard development and/or the use of engineered drainage to control vineyard soil erosion (see discussion that follows below) have caused significant increases in storm runoff, and consequent erosion of gullies, landslides, and/or channels downslope of farming areas (Water Board, 2008, p.18; Napolitano, 2008). Concentration of storm runoff from hillslope vineyards and roads are two of several causes of channel incision occurring further downstream in alluvial channel reaches (Water Board, 2008, p. 39). Typically, vineyard properties also include extensive unpaved roads (average road density[8] is about 4.5 miles of road per square mile of land area) that are significant sources of sediment delivery to channels. Road-related erosion and storm runoff increases from hillslope vineyards and roads remain unaddressed at most vineyard properties within the project area.

Effects of vineyard and road development & management on erosion and storm runoff

In the following section, we describe how development and management practices for both vineyards and roads can cause significant increases in storm runoff and rates of sediment delivery to channels in the Napa River and Sonoma Creek watersheds. We also describe the persistent impact of intensive historical grazing at some present-day vineyard properties on storm runoff and sediment delivery to channels. The General Permit is intended to substantially reduce and control these land-use related sediment sources.

Deep ripping of soils to develop and/or replant a vineyard

Within the project area, when a vineyard is developed or replanted, it is a common practice for the soil to be deeply ripped, that is for the soil to be loosened, broken-up, and/or tilled with a tractor mounted disk harrow or rototiller to a depth typically of 3 feet-or-more in order to: a) break up restrictive soil layers to promote root growth; and b) help create more uniform conditions for grape cultivation, because soil under the natural condition is not uniform in depth or permeability (White, 2015, p. 55-59; AES,

[7] Hillslopes are natural raised areas of land that slope toward adjacent low-lying areas or valleys. Previously most vineyards had been developed in the Napa Valley, Sonoma Valley, and/or Chiles Valley (located in the northeastern part of the Napa River watershed).

[8] Within a given watershed, the “road density” is the length of road per unit watershed area. For example, the Napa River watershed drains a 426 mi^2 area, and has an estimated 1917 miles of roads, which corresponds to an average road density of 4.5 mi/mi^2.

2014, p. 3-28; AES, 2012a, Appendix F, p. 11; AES, 2012b, 4.8-17, County of Napa, 2015, p.1). The following video documents deep ripping of a replanted vineyard in the Napa Valley: https://www.youtube.com/watch?v=YQ8rwcCljqk (Michael Neal Viticultural Services, 2013). At most hillslope sites, the soil profile is quite shallow, often 2 feet-or-less (USDA Soil Service, 1978, pp. 3-5). Therefore, at many hillslope sites deep ripping also penetrates into weathered bedrock (see also Swinchatt and Howell, 2004, p. 32 and pp. 80-81).

Deep ripping and/or conventional soil tillage acts to break up the soil, creating a new agriculturally developed network of large openings in the soil (e.g., soil macropores) that provide preferential pathways for the movement of water[9]. However, ripping also fundamentally disrupts the natural soil structure and its hydrologic response. Under undisturbed conditions, natural soil macropores - large open voids created by biological activity – including, for example, those created by burrowing and root growth[10], often provide the dominate pathways for the movement of water during storms (Beven and Germann, 2013; Black, 1996). There is a strong correlation between macropore space and continuity and soil infiltration capacity (Beven and Germann, 1982; Watson and Luxmore, 1986, as cited in Beven and Germann, 2013).

Tillage has been documented to disrupt natural soil macropores and their interconnections causing a substantial reduction in soil infiltration capacity and hydraulic conductivity (Ehlers, 1975, as cited in Beven and Germann, 1982, p. 1314; Shipitalo et al., 2000; Azooz and Arshad, 1996). As deep ripping is a deeper and more intensive form of tillage, it is likely that the adverse effects on occurrence and connectivity of natural macropores, and hence soil infiltration capacity and hydraulic conductivity, are even greater.

The benefits of ripping on root development and growth and/or soil infiltration capacity have only been demonstrated for compacted soils (primarily at agricultural sites), as a before and after comparison; however, even at these sites, these benefits with regard to the growth and vigor of grapevines and/or soil infiltration capacity are expected to diminish within a period of a few to several years (Hamza and Anderson, 2005, pp. 134-137; Blanco and Lal, 2010, p. 215 and 403). Furthermore, ripping, as typically practiced to develop hillslope vineyards within the project area, also shatters and mixes weathered bedrock because ripping extends beyond the soil profile. Therefore, deep ripping also can alter subsurface flow through weathered bedrock, which is an important pathway for storm flow, and also can govern dry-season baseflow in streams draining hillslopes (see discussion in Rempe and Dietrich, 2014). In the Napa River and Sonoma Creek watersheds, dry-season baseflow in all stream reaches except those that traverse unconfined alluvial valleys, likely is provided in part or mostly by this type of subsurface flow (i.e., through the weathered fractured bedrock that occurs beneath hillslopes).

In summary, deep ripping of soils and also in some cases weathered bedrock beneath the soils has occurred over extensive areas to develop and/or replant vineyards within the project area, and this practice has caused significant changes in the way that water moves through the soil and/or weather fractured bedrock. As described above, deep ripping can significantly diminish soil infiltration capacity and hydraulic conductivity, and therefore it is plausible at some hillslope vineyard sites, that deep ripping also has significantly diminished groundwater recharge, and/or increased storm runoff.

[9] The macropores created by tillage, as compared to natural macropores, typically are much more poorly connected (Rosenberg and McCoy, 1992, as cited in Shipitalo et al., 2000), and tend to collapse much more quickly (Schumacher and Riedell, 2008).

[10] Natural macropores also are created by physical processes including wetting and drying and freezing and thawing of soils.

Conversion of a forest to a vineyard

When a forest is converted to a vineyard, rainfall interception, soil infiltration capacity, evapotranspiration, and root strength all can be substantially reduced with the potential for consequent significant increases in storm runoff and erosion. At forested sites, almost all of the water discharged to stream channels comes from subsurface flow that moves through hillslope soils and/or weathered fractured bedrock (Harr, 1977, as cited in Ziemer and Lisle, 1998, p. 48). Soil macropores and natural soil pipes, created by the growth and decay of tree roots in forested areas may provide half-or-more of the total runoff to stream channels during storms (Ziemer and Lisle, 1998, pp. 48-49). Where a forest is replaced by a vineyard, it is likely that soil infiltration capacity will be substantially reduced (Neary et al., 2009).

Converting a forest to a vineyard also contributes to significant increases in storm runoff peak and volume because: a) forests are much more effective than vineyards in intercepting rainfall (so rainfall gets into the ground much more slowly in a forest); b) forests also have higher rates of evapotranspiration (because trees consume more water, less remains stored in the hillslopes, and therefore, soil infiltration capacity is enhanced early in the wet season); and c) the tree canopy and leaf litter protects the soil surface from rain splash and soil crusting, which also helps to keep infiltration capacity high during storms.

Finally, root strength provided by trees in most circumstances also greatly increases mechanical resistance to shear stress (Selby, pp. 275-278, 1993). Therefore, reduction in root strength resulting conversion from forest cover to vineyard also may increase landslide activity.

Soil compaction through agricultural activities

In growing wine grapes, primary uses of tractors are for tillage, seeding cover corps, applying soil amendments, and/or spraying of fertilizers, Sulphur, or pesticides. Although tractors designed for vineyards often are much smaller than for most other types of row crops, vineyard tractors still are heavy vehicles and exert significant pressure (force per unit area) on the soil. Tractor use when soils are moist can cause soil crusting and/or increases in soil bulk density, with consequent reduction of infiltration and water-holding capacity of the soil (Hamza and Anderson, 2005). Soil compaction through heavy equipment traffic (Chappell, 2010, as cited in Beven and Germann, 2013) and/or tillage (Ehlers, 1975, as cited in Beven and Germann, 1982) also disrupts or destroys natural soil macropores formed by biological activity. Crusting, increases in bulk density, and disruption of macropores all can contribute to significant increases in storm runoff.

Intensive use of engineered drainage to control vineyard erosion

Many vineyard sites use engineered subsurface drainage pipes to control erosion within the vineyard by intercepting surface runoff before it can become sufficiently concentrated to cause significant soil erosion. Engineered subsurface drainage pipes are a common best management practice within the project area for vineyard soil erosion control[11]. However, installation of subsurface drainage pipes also

[11] At a proposed vineyard, drainage pipes only would be permissible where hydrologic modeling indicates that the vineyard development wouldn't increase storm runoff, and the proposed vineyard doesn't discharge into an unstable channel. At all vineyards, if an erosional reaction occurs along the hillslope vineyard runoff pathway, at any time subsequent to vineyard development, additional BMPs would be required to reduce storm runoff including possibly, the capping or removal of the drainage pipes, and application of soil bioengineering techniques to stabilize the erosion site(s) (see Chapter 2, Project Description for additional details).

can cause storm runoff to be substantially concentrated in time and/or space. Where intensive engineered drainage is installed at a sensitive site – including hillslope sites underlain by soft sedimentary bedrock types and/or where a forest is converted to develop a vineyard – storm runoff increases are substantial, often causing gully and/or landslide erosion along hillslope overland flow pathways and/or head-cutting and/or downcutting in channels at/or near the point(s) of discharge from the vineyard (Water Board, 2009a, p.18; Napolitano, 2008).

Soil compaction caused by intensive historical grazing

Within both watersheds, many grassland sites were intensively grazed during the historical period, causing or contributing to gully, landslide, and channel erosion that has persisted and is at present producing a significant amount of fine sediment delivery to channels (Water Board, 2008). Hillslope vineyards subsequently developed at these sites are discharging into these actively eroding unstable hillslope and channel features, which are quite sensitive to an acceleration of erosion rates as a result of subsequent vineyard-related changes in the locations and/or amount of storm runoff (e.g., intensive use of engineered drainage, soil compaction through agricultural activity, deep ripping of soils, etc.). These intensively eroding sites are most common within the Carneros Region, where clayey soils are widespread, and which, up until recent decades, were very heavily grazed (see Grossinger et al., 2004). Heavy grazing caused these clayey soils to become severely compacted and vegetation cover density to be substantially reduced. Severe soil compaction acting in concert with reduced ground cover during the period of grazing greatly increased overland flow runoff during storms, providing the impetus for gullies and shallow landslides to form. Once erosion starts in these inter-connected gullies and shallow landslides, there is positive feedback for the erosion process to continue for a very long period of time (e.g., a few decades-to-centuries). Therefore, even modest changes in the location and/or intensity of peak runoff caused by vineyard development and/or use of engineered drainage, can accelerate this erosion.

In addition to the Carneros Region, soils developed on hard lava flow units of the Sonoma Volcanics Formation, which are extensive within the project area, also are clay-rich and are vulnerable to compaction. However, because cobbles and boulders are also abundant in these soils, and these soils are typically very thin, gullies and/or shallow landslides formed on soils covering the hard volcanic flows are usually much smaller features.

Effects of roads on storm runoff and sediment delivery to channels

There are a number of mechanisms by which roads can increase storm-runoff and/or sediment delivery to channels. Road cuts intercept subsurface drainage, speeding up runoff rate. Roads also usually change the distribution of runoff along the hillslope. Inboard ditches and compacted road surfaces substantially increase the rate, volume, and locations of direct runoff from these areas, which can cause the road surfaces and ditches to rapidly erode. Road cuts and fills alter drainage pathways and the distribution of mass on the hillslope, often contributing to greater rates of landslide activity. Also, road crossings (over channels), may be undersized for the conveyance of peak runoff rates, and/or may be easily plugged by large debris during storms causing overtopping and/or diversion of channel flows, with resulting road crossing erosion, and/or gully erosion through diversion of channel flows to another channel or hillslope location. Within the project area, road-related erosion - largely extensive networks of unpaved roads – is one of the largest sources of human-caused sediment delivery to channels (Water Board, 2009a, p. 72; Water Board, 2008a, p. 43).

In defining the baseline condition under CEQA, we also note that existing unpaved roads in the project area are highly disturbed features. Through the process of original construction, including grubbing and clearing of native vegetation, grading (cut and fill of soils to a depth of several feet) and then

compaction of the constructed road prism, vegetation and soils have been intensively disturbed. Vegetation and/or soils in or directly adjacent to the road prism experience frequent and intensive ongoing disturbances through:

a) Vehicle traffic that wears down and deforms the unpaved road surface;

b) Sheetwash, fluvial and/or mass wasting erosion processes acting on the cut banks, road surface, ditches, berms, and/or shoulders; and

c) Road maintenance activities that involve regular vegetation and soil disturbance within the road prism (e.g., re-grading to smooth or reshape the road surface or restore drainage through roadside ditches, and vegetation management to maintain drainage along inboard ditches, tree removal to maintain safe driving conditions along the road, and functionality of pullouts/shoulders).

1.2. Existing Regulation of Vineyard Properties

The Water Board has not previously regulated pollutant discharges from vineyard properties in the Napa River and/or Sonoma Creek watersheds. Certain aspects of vineyard erosion have, however, been regulated through county-level programs, which are discussed below. Many erosion control and/or habitat protection actions already have occurred through implementation of these local regulations. The Water Board's proposed General Permit, while recognizing these county-level regulations, is intended to attain the performance standards for vineyard properties that are specified in the Napa River and Sonoma Creek sediment TMDLs including those for soil erosion in farmed areas, sediment delivery from unpaved roads, and storm runoff from hillslope vineyards[12].

In addition to the county-level regulatory programs, local voluntary conservation programs have been implemented at a large scale under the leadership of Resource Conservation Districts (based in Napa and Sonoma counties), the USDA Natural Resources Conservation Service, and private nonprofit groups (i.e., the California Land Stewardship Institute) to provide another mechanism for adoption of best management practices at vineyards to minimize fine sediment inputs and restore stream-riparian habitat. The following sections provide general descriptions of the contributions of these existing local programs.

Summary of Napa County Regulatory Program for Vineyards

The Napa County Planning Division regulates development of new vineyards and vineyard replants located on hillslopes. Its process is guided by the Napa County Conservation Regulations (Conservation Regulations) enacted in 1991 (Napa County Code, Chapter 18.108). Beginning in 2000, the County also has conducted a broader review of environmental impacts under CEQA.

The Conservation Regulations set the requirements and guidelines for preparing, reviewing, and approving Erosion Control Plans (ECPs) for grading and vegetation removal associated with new or replanted vineyards on slopes greater than five percent. New vineyards and replants on valley floor

[12] The Water Board permit would control discharges from three significant sediment sources associated with vineyard properties: 1) soil erosion in the farmed area; 2) hillslope and/or channel erosion via concentration of storm runoff caused at some sites by vineyard development or management practices; and 3) erosion from extensive property-wide, unpaved road networks. Local regulatory programs have focused largely on soil erosion in farmed areas.

sites (slopes of less than five percent) are exempt from the erosion control plan requirements of the Conservation Regulations.

The Napa County ECP process can follow one of two paths (Napa County Code, Chapter 18.108):

- Track I – Applies to new vineyards and those developed since 2000, and requires discretionary approval by Napa County (subject to CEQA review).

- Track II – Applies to vineyard replants and is a ministerial action, provided the replant falls within the existing vineyard footprint and there are no substantial changes to site drainage or layout. Most replanted vineyards proceed through the Track II process.

Track I requires hydrologic and erosion analyses to demonstrate that no net increases in soil loss and peak runoff[13] will occur over pre-project conditions. Furthermore, the county's Conservation Regulations require stream setbacks for new vineyards that range from 35-to-150 feet, depending on stream designation and the slope of the land adjacent to the stream channel (35-feet for valley floor sites, and up to 150 feet where steep slopes abut channels). Replants, if completed within the original vineyard footprint, are not required to meet the stream setback criteria.

Napa County-required stream setbacks apply to watercourses designated by a solid or dashed blue-line on United States Geological Survey (USGS) topographic maps, and/or other watercourses that have: a) a well-defined channel with a depth greater than four feet, b) banks steeper than 3:1, and c) contains hydrophilic or riparian vegetation. Many headwater channels do not meet the county's definition of a watercourse, including most cascade and some step-pool channel reaches that provide spawning and rearing habitat for steelhead (Dietrich et al., 2004). This is because many of these channels are not designated by a solid or dashed blue-line on USGS maps, and/or they are less than four feet deep.

There are no requirements for retroactive erosion controls on vineyards that existed on hillslopes prior to enactment of the ordinance in 1991. However, these existing vineyards are required to submit ECPs at the time of replanting. New vineyard projects proposed on slopes exceeding 30 percent also require issuance of a County use permit, and new vineyards proposed on slopes exceeding 50 percent require a variance.

Road-related erosion and storm runoff increases from hillslope vineyards and roads remain unaddressed by local regulations at most vineyard properties within the Napa River watershed. The proposed General Permit has been developed primarily to address these regulatory gaps.

Summary of Sonoma County Regulatory Program for Vineyards

New vineyard development and replants in Sonoma County are guided by the Grading, Drainage, and Vineyard and Orchard Site Development Ordinance (VESCO). The Sonoma County Agricultural Commissioner's Office implements and enforces VESCO. Currently, the VESCO process does not require CEQA project-level analysis.

VESCO requires a permit for any grading, drainage improvement, or site development associated with new or replanted vineyards. VESCO's permits are issued at two levels that take into account soil type, soil erosivity, and slope as follows (Sonoma County Code, Chapter 11.08.010):

- Level I – Applies to new vineyards or replants developed on slopes less than or equal to 10 to 15 percent and does not require ECP documentation or verification of project completion.

[13] The peak runoff requirement was established more recently as an implementation action, following the update of the County General Plan in 2008.

- Level II – Applies to new vineyards or replants on slopes greater than 10 or 15 percent and requires the project proponent to submit an ECP that is reviewed by the VESCO staff. VESCO staff conducts post-construction review to confirm that ECP design plans were followed and implemented appropriately.

Both Level I and Level II projects are required to adhere to the best management practices and standards described in the Best Management Practices for Agricultural Erosion and Sediment Control manual (Sonoma County Agricultural Commissioner's Office, 2013).

VESCO and the County General Plan establish stream setback requirements that range from 25 feet to 50 feet, depending on slope of the adjacent land, soil type, and stream designation.

New vineyards on slopes greater than 50 percent are prohibited and there are no retroactive erosion control requirements for vineyards constructed prior to VESCO. Existing vineyards are required to comply with VESCO at the time of replanting with more oversight occurring on properties containing highly erodible soils.

As in Napa County, road-related erosion and storm runoff increases from hillslope vineyards and roads, in most cases, have not been subject to local regulation in the Sonoma Creek watershed. The proposed General Permit has been developed primarily to address these gaps.

1.3. Existing Local Voluntary Farm Water Quality Protection Programs

Local voluntary conservation programs have been implemented at a large scale under the leadership of the Napa County and Sonoma County Resource Conservation Districts, the USDA Natural Resources Conservation Service, and the California Land Stewardship Institute, providing another mechanism within the project area to minimize fine sediment inputs and restore stream-riparian habitat. The following section provides a general description of these programs.

Fish Friendly Farming Environmental Certification Program

The Fish Friendly Farming Certification Program (FFF) is a voluntary program developed by the California Land Stewardship Institute (CLSI), a non-profit organization that provides technical assistance to vineyard property owners to help them develop and implement best management practices to protect and/or restore water quality and stream and riparian habitat (California Land Stewardship Institute, 2009). FFF was established within the project area beginning in the fall of 2004. The CLSI certification process involves enrollment by vineyard operators, participation in educational workshops, and preparation of a detailed Farm Conservation Plan that covers the entire property[14]. Once the farm plan is completed, in order to receive certification, the plan must be reviewed/approved by participating regulatory agencies (which have included the Water Board, National Marine Fisheries Service, and County Agricultural Commissioner). Participating regulatory agencies also conduct a site inspection to verify conditions documented in the plan, and to independently evaluate BMPs. Once the plan is certified, the owner implements the farm plan[15]. Photo documentation is used to validate that

[14] With regard to sediment, the farm plan evaluates the entire property including: a) delineation of all natural and engineered drainage features; b) location of all significant/active human-caused sediment sources; and c) specification/delineation of the erosion control and management practices employed throughout the property (including for all roads, channel erosion sites, upland legacy erosion sites, and within the vineyard footprint).

[15] At the time of certification, BMPs must be in-place throughout the farmed area. Within five years of certification, BMPs to control significant road-related sediment sources also must be in-place. A longer

the plan is being implemented. Plans are updated regularly and recertified by CLSI every 5-7 years. BMPs in place to control soil erosion within farming areas at certified sites would be considered fully compliant with the performance standards for vineyard soil erosion, pesticides, and nutrients that are conditions of the proposed General Permit.

As of the fall 2015, approximately 34,800 acres of vineyard properties had been certified, including approximately 17,900 acres planted in grapes, under the Fish Friendly Farming Program corresponding to about 30% of the planted vineyard area and about 20% of the total Vineyard Property area within the Napa River and Sonoma Creek watershed (CSLI unpublished data, 2015), which is a significant accomplishment that will simplify compliance with the proposed General Permit at most of these properties[16].

LandSmart

The Sonoma Resource Conservation District (RCD), in collaboration with the Napa County RCD, and other partners, recently developed *LandSmart*, a technical assistance program for grape growers and other farmers to help them to develop plans to protect and/or restore water quality and habitat conditions throughout their property (http://www.landsmart.org). This farm water quality and habitat protection program has multiple goals, including helping landowners to comply with existing regulations and the proposed General Permit. Similar to FFF, the *LandSmart* program provides technical assistance with inventory of agricultural and natural resources, and with documentation and/or implementation of practices property-wide that are effective for control of fine sediment discharge and for protection and/or enhancement of stream and riparian habitat conditions. Like FFF, it also evaluates and provides technical assistance related to: water resources management; agricultural chemical management; control of invasive species; fish passage; and other resource management issues.

As of the fall of 2015, farm plans have been developed covering approximately 10,000 acres of vineyard properties (LandSmart, unpublished data). BMPs in place within farm areas for the control of soil erosion within the vineyard and/or to control chemical and nutrient discharges at LandSmart certified sites would be fully compliant with the proposed General Permit.

Other Programs

Other non-profits organizations and local government agencies also have expressed interest in providing technical assistance to grape growers to help them develop and implement Farm Plans to comply with the proposed General Permit including: a) the Vineyard Team (which has developed the *Sustainability in Practice* program); b) the Wine Institute (which has developed the *Code of Sustainable Winemaking* program), and c) the County of Sonoma, Agricultural Commissioner's Office.

---

period of time is provided to implement BMPs to address sediment sources related to historical land-use activities that have resulted in large gullies or landslides (up to 10 years - if permits and/or grant funding would be required in order to address the problem; otherwise within 5 year of certification). Similarly, a stream-riparian corridor of sufficient width to maintain and/or to facilitate restoration of habitat complexity is fully established within a 10-year-or-shorter period (e.g., vineyard blocks and/or roads are moved back over time where the corridor width is not sufficient to facilitate restoration). Minimum corridor width in most cases is ≥ three-times bankfull channel width.

[16] At some hillslope vineyard properties that have been certified, additional management practices may need to be implemented to achieve the performance standards for unpaved roads and/or for vineyard storm runoff.

1.4. Relationship between local regulatory programs and the General Permit

The primary focus of county regulatory programs has been the control soil erosion in farming areas at properties where vineyards are developed on hillslopes (Napa County Code, Chapter 18.108, and Sonoma County Code, Chapter 11.08.010). Vineyards planted on hillslopes prior to the adoption of County ordinances, and/or planted on valley floor sites, in most cases have been exempt from the requirement to prepare an erosion control plan.

More recently, following adoption of the Napa County General Plan in 2008, new hillslope vineyards also are required to achieve a no-net increase standard for peak storm runoff, as compared to the baseline condition preceding vineyard development (Napa County, 2009, Policy CON-50(c), p. CON-39). There is no similar requirement in Sonoma County.

At present, there is little or no regulation in either county of discharges from existing unpaved roads.

The proposed General Permit for Vineyard Properties is intended to fill gaps in local regulation of pollutant discharge from vineyards and roads in the Napa River and Sonoma Creek watersheds. Under the General Permit, a Vineyard Property is defined by a parcel or contiguous parcels under the same ownership, where grapevines are planted on part of the property. Vineyard Properties where ≥ 5 acres are planted in grapevines, in most cases, would be required to enroll in the proposed General Permit, and to achieve its performance standards for discharge of sediment and storm runoff from vineyards and unpaved roads, and also for discharge of pesticide and nutrient discharges from vineyards.

Third Party Programs

The Nonpoint Source Policy (State Board, 2004) encourages the State Water Resources Control Board (State Water Board) and the Regional Water Quality Control Boards (Water Boards) to "be as creative and efficient as possible in devising approaches to control nonpoint source pollution." This includes development of "Third-Party Programs," including coalitions of dischargers in cooperation with a representative, organization, or government agency to assist the dischargers in complying with permit requirements, and to assure the Water Board and the public that effective programs are developed and implemented to reduce nonpoint source pollution.

The Water Board will consider and approve Third-Party Programs and Qualified Professionals[17] to assist Dischargers in complying with this Order if the Third-Party Program or Qualified Professional meets the requirements as set forth in the Attachment C to the General Permit (Appendix A). Entities interested in forming a Third-Party Program or being approved as a Qualified Professional must document their capabilities and request approval for their program from the Water Board's Executive Officer. Each proposed Third-Party Program and Qualified Professional will be judged individually on its merits, including the program's technical ability to work with regulated entities and experience in developing and implementing nonpoint source pollution control programs.

Discharger participation in a Third-Party Program or Qualified Professional is optional; farm plans implemented under Third-Party Programs or Qualified Professional provide an equivalent or greater level of water quality protection, and do not change the impact analysis.

[17] A "Qualified Professional" is defined to include a California registered professional in a discipline associated with erosion and sediment control including for example a professional engineer, licensed geologist, or certified professional in erosion and sediment control.

1.5. Purpose of the EIR

CEQA requires that State and local government agencies consider environmental consequences of projects over which they have discretionary authority before taking action on those projects (Public Resources Code, § 21000 et seq.). The EIR is an informational document which will inform public agency decision-makers and the public generally of the potential significant environmental effects of a project, discuss possible ways to minimize significant effects, and describe reasonable alternatives to the project.

The project proposed in this EIR is the Water Board's discretionary action to adopt the proposed General Permit for the protection of water quality associated with vineyard properties. The Water Board will prepare responses to comments received on this draft EIR in preparation of the Final EIR. The Water Board will review the EIR before certifying it as meeting the requirements of CEQA. Once the EIR is certified, it will be considered by the Water Board along with other important information which may be presented at the time it considers adoption of the proposed General Permit.

1.6. Scoping Process

CEQA encourages a consultation or scoping process to help identify the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in an EIR, and to help resolve concerns of affected agencies and individuals. The intent of the scoping process is to identify significant issues for study in the EIR and to determine the scope of the analysis of each issue. Scoping is designed to explore issues for environmental assessment to ensure that important considerations are not overlooked, and to uncover concerns that might otherwise go unrecognized. Scoping has allowed the Water Board to make the EIR as complete and informative as possible for decision makers and those affected by the proposed action and its alternatives. This section describes the scoping activities sponsored by the Water Board.

The Notice of Preparation (NOP), which is required by CEQA, is the first formal effort to involve the public and interested agencies in the scoping process for preparation of the EIR. The NOP describes the proposed project, indicates the types of environmental effects that could result from implementation of the project, and announces the start of an EIR review process under CEQA. The NOP encourages public participation in the environmental evaluation.

On July 7, 2014, The Water Board sent an NOP, which included an attached Initial Study, to public agencies and persons with potential interest in the project. Copies of the NOP and Initial Study were available for review at the Water Board's Oakland office. Additionally, the NOP and Attached Initial Study were posted at the Water Board's webpage (http://www.waterboards.ca.gov/sanfranciscobay/public_notices/) and an announcement of its availability was forwarded to individuals that subscribed to the electronic mailing lists relevant to information on the proposed General Permit. The NOP and the attached Initial Study, and distribution list for the NOP are included in Appendix C.

On July 23, 2014, the Water Board held a scoping meeting in Napa, California, to solicit input from agencies and interested parties on issues to be addressed in the EIR. The scoping meeting included a description of the meeting's purpose, proposed requirements, and presented an overview of the environmental review process and preparation of the EIR, and included a public comment period. Those in attendance made comments on issues related to the proposed General Permit requirements.

1.7. Public Involvement

The EIR is being circulated for public review and comment. In addition, the Water Board will be conducting one or more public meetings on the EIR. Comments received at public meetings or received in written form will be considered in development of a final EIR. Once the final EIR has been circulated, the Water Board will receive and respond to public testimony on the final EIR and General Permit before official action is taken upon its adoption or denial.

1.8. Report Organization

The EIR is organized into the following chapters so that the reader can easily obtain information about the project and its specific environmental issues:

- Executive Summary presents a summary of the General Permit, a description of impacts and mitigation measures presented in a table format, and impact conclusions.
- Chapter 1, “Introduction and Background,” provides a brief overview of the EIR’s purpose.
- Chapter 2, “Project Description,” provides information on the project including location, objectives, technical, economic, and environmental characteristics, and intended uses.
- Chapter 3, “Impact Analysis Approach” discusses assumptions, parameters, and methodology used for analyzing potential impacts.
- Chapters 4 through 8 provide discussion on environmental factors provided in the CEQA Guidelines’ Environmental Checklist. Each of these chapters describes environmental settings, a range of potential impacts, including significant environmental effects and unavoidable significant environmental effects that would result from the General Permit, and potential mitigation measures.
- Chapter 9, “Cumulative Impacts,” summarizes cumulative impacts.
- Chapter 10, “Alternatives Analysis,” presents project alternatives (including the No-Project Alternative) and provides an evaluation of each alternative in comparison with the project. Table 10-2 provides a summary of each alternative and relative environmental effects.
- Chapter 11”Long-ter Implications” presents growth-inducing impacts, significant irreversible environmental effects, and significant and unavoidable environmental impacts of the proposed project.
- Chapter 12, “Document Preparation,” lists individuals involved in preparing the EIR.
- Appendix A: Draft General Permit for Vineyard Properties
- Appendix B: GIS Analysis
- Appendix C: Notice of Preparation and Initial Study for the General Permit for Vineyard Properties

References

AES, 2012a. Walt Ranch Erosion Control Application P-11-00205-ECPA, Draft Environmental Impact Report.

AES, 2012b. Draft environmental impact report, Jasud Estates Vineyard timber conversion plan. Prepared for the California Department of Forestry and Fire Protection, Sacramento, California. Prepared by Analytical Environmental Services, Sacramento, California.

Azooz, R.H., and M. A. Arshad, 1996. Soil infiltration and hydraulic conductivity under long-term no-tillage and conventional tillage systems. Canadian Journal of Soil Science, 1996: 143-152.

Beven, K. and P. Germann, 1982. Macropores and water flow in soils. Water Resources Research, Vol. 18, No. 5: 1311-1325.

Beven, K. and P. Germann, 2013. Macropores and water flow in soils revisited. Water Resource Research, Vol. 49: 3071-3092.

Blanco, H. and R. Lal, 2010. Principles of soil conservation and management. First soft cover printing. Springer: New York, New York.

California Land Stewardship Institute, 2009. Fish Friendly farming Environmental Certification Program, Napa County, Farm Conservation Plan Workbook and Beneficial Management Practices.

California Land Stewardship Institute, 2015. Unpublished data regarding farm plan certifications.

County of Napa, 2015. Kongsgaard Wine LLC, Atlas Peak Vineyard Conversion: Agricultural Erosion Control Plan (ECPA) #P14-00069-ECPA, Initial Study. County of Napa, Department of Conservation, Development, and Planning: Napa. CA.

Dietrich, W.E. et al., 2004. The use of airborne laser swath mapping data in watershed analysis to guide restoration priorities: the Napa River watershed study. EOS, Transactions, Fall Meeting 2004, Abstract 85(47).

Grossinger, R., C. Striplen, and E. Brewster, 2004. Ecological, Geomorphic, and Land Use History of the Carneros Creek Watershed. SFEI: Richmond, CA.

Hamza, M.A., and W.K. Anderson, 2005. Soil compaction in cropping systems, a review of the nature, causes, and possible solutions. Soil & Tillage Research (82): 121-145.

Kauffman, J.B., R.L. Beschta, and N. Otting, 1997. An ecological perspective of riparian and stream restoration in the western United States. Fisheries, Volume 22 (5): 12-24.

Leidy, R.A., 2007. Ecology, Assemblage Structure, and Status of Fishes in Streams Tributary to the San Francisco Estuary, California. pp. 50, 146-155, 157-158, and 192.

Michael Neal Viticultural Services, 2013. You Tube video titled “Vineyard Site Prep for Planting: Stage One.” https://www.youtube.com/watch?v=YQ8rwcCljqk . Video published on September 4, 2013.

Napa Valley Register, 2013. Napa Valley remain most expensive in U.S. Napa Valley Register, April 3, 2013.

Napolitano, M., 2008. Unpublished note to file, “Vineyard design/management and relationships to on-site surface erosion rates and off-site erosion via concentrated runoff.” Water Board: Oakland, CA.

Neary, D. G., G. G. Ice, and C. R. Jackson, 2009. Linkage between forest soils and water quality and quantity. Forest Ecology and Management 258 (2009): 2269-2281.

Poirier-Locke, J., 2002. Vineyards in the watershed, sustainable winegrowing in Napa County. Napa Sustainable Winegrowing Group: Napa, CA. pp. 31-32, 36, and 38.

Rempe, D.M., and W.E. Dietrich, 2014. A bottom up control on fresh-bedrock topography under landscapes. Proceedings of the National Academy of Sciences, Vol. 111, No. 18: 6576-6581.

San Francisco Chronicle, 2005. "The story behind the story that made wine history." W. Blake Gray, June 16, 2005.

Schumacher, T.E. and W.E. Riedell, 2008. Soil structure examined. PP. 398-405 in "Leading Edge – The Journal of No-Till Agriculture", Volume 7, Number 1. January, 2008. Wamego, KS.

Shipitalo, M. J. and W. A. Dick, 2000. Conservation tillage and macropore factors that affect water movement and the fate of chemicals. Soil and Tillage Research, 53: 167-183.

Selby, M.J., 1993. Hillslope materials and processes. Second Edition. Oxford University Press: New York, New York. pp. 275-278.

Sonoma County Agricultural Commissioner's Office, 2013. Best Management Practices for Agricultural Erosion and Sediment Control. County of Sonoma, Agricultural Commissioner's Office: Santa Rosa, CA.

Stillwater Sciences and W. Dietrich, 2002. Napa River Basin Limiting Factors Analysis, Final Technical Report.

Swinchatt, J. and D.G. Howell, 2004. The Winemaker's Dance, Exploring Terroir in the Napa Valley. University of California Press: Berkeley, CA. pp. 2, 8, 32, 80-81.

USDA Soil Service, 1978. Soil Survey of Napa County, California. US Government Printing Office 1978 0-230-729.

USDA (Soil Conservation Service), 1985. Hillside Vineyards Unit. Redwood Empire Target Area: Napa and Sonoma Counties, California. pp. 1-6, and 43-63.

Water Board, 2008a. Sonoma Creek Watershed Sediment TMDL and Habitat Enhancement Plan, Staff Report.

Water Board, 2008b. Sonoma Creek Watershed Sediment TMDL and Habitat Enhancement Plan, Basin Plan amendment.

Water Board, 2009a. Napa River Sediment TMDL and Habitat Enhancement Plan, Staff Report.

Water Board, 2009b. Napa River Sediment TMDL and Habitat Enhancement Plan, Basin Plan amendment.

White, R.E., 2015. Understanding Vineyard Soils. Chapter 2, Site Selection and Soil Preparation, Modifying the Soil-Vine Environment, pp. 74-78. Second Edition. Oxford University Press: New York, New York.

Ziemer, R.R., and T.E. Lisle, 1998. Hydrology. Chapter 3 in "River Ecology and Management, Lessons from the Pacific Coastal Ecoregion." Editors: R.E. Naiman and R.E. Bilby. Spring: New York, New York.

2. PROJECT DESCRIPTION

The Water Board proposes to adopt and implement a General Permit for Vineyard Properties in the Napa River and the Sonoma Creek watersheds (Figure 2-1). Under the General Permit, a Vineyard Property is defined to include all contiguous parcels under the same ownership, where 5 acres or more are planted in wine grapes. The proposed General Permit is included as Appendix A. This chapter provides: a description of the project location; project objectives; the requirements of the General Permit; project characteristics; agencies that will use this document; and anticipated conditions following adoption of the General Permit.

2.1. Project Location

The boundaries of the adjacent Napa River and Sonoma Creek watersheds, located in the northern San Francisco Bay Area, define the project area (Figure 2-1). These watersheds drain approximately 380,000 acres. They are the two largest watersheds discharging into San Pablo Bay.

2.2. Project Objectives

The fundamental project objective is to implement the Napa River and Sonoma Creek sediment TMDLs including achievement of vineyard property discharge performance standards for sediment and storm runoff, and ultimately to meet the TMDLs' sediment allocations and targets as needed to restore properly functioning substrate conditions in channel reaches that provide habitat for anadromous salmonids.

Secondary project objectives include the following:

- To control discharges of sediment and/or storm runoff from vineyards into channel reaches that provide habitat for other native fishes
- To promote stream-riparian habitat protection and restoration
- To promote actions to restore fish passage at road crossings and streamflow diversions
- To promote management decisions and actions to maintain adequate in-stream temperature, and
- To encourage voluntary conservation programs to assist vineyard owners/operators in meeting the requirements and objectives of the General Permit.

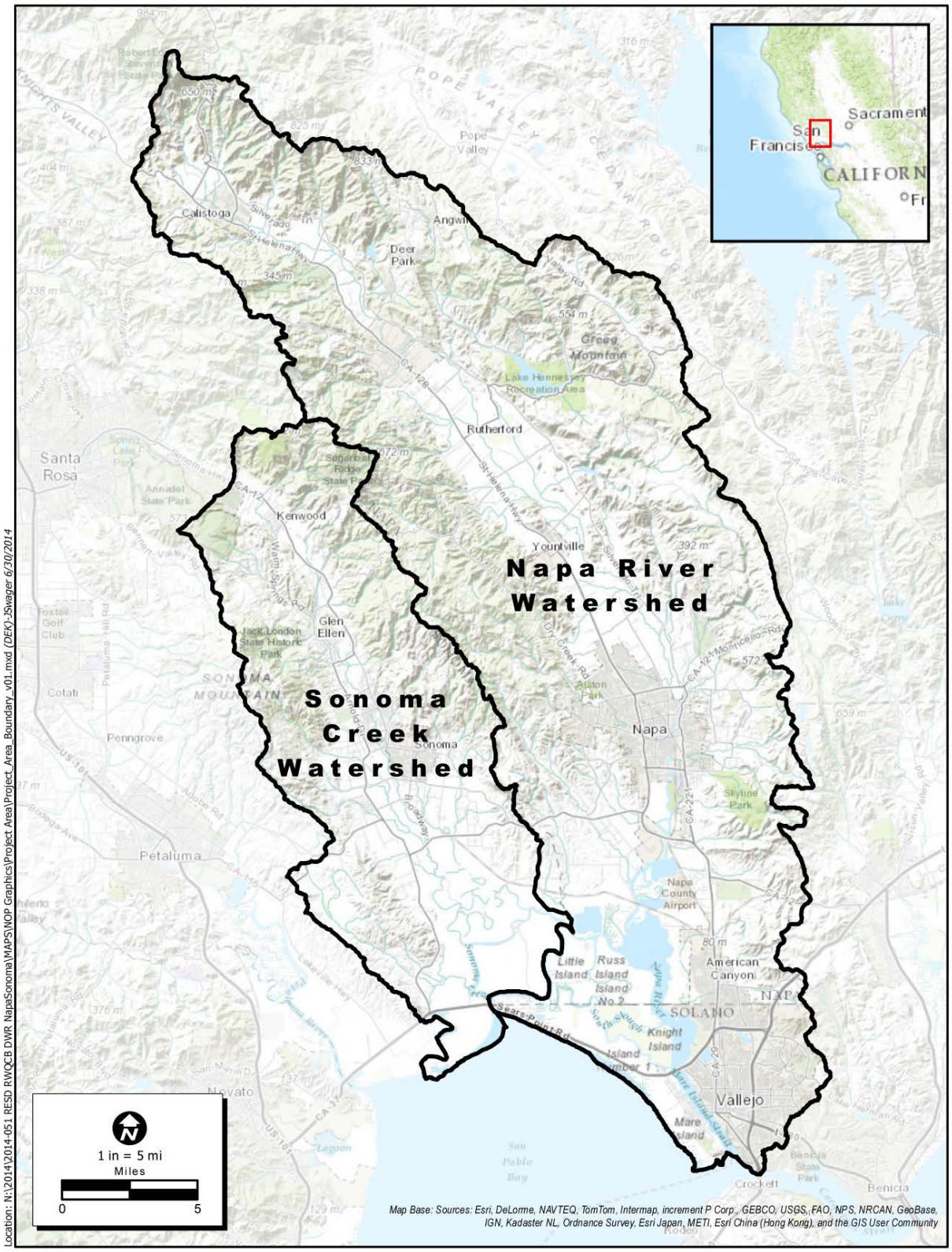


Figure 2-1. Project Area Boundary

2.3. Overview of the General Permit (The Project)

The General Permit specifies that vineyard properties achieve performance standards for discharge of sediment, storm runoff, nutrients, and pesticides from areas of agricultural cultivation, for the discharge of sediment and storm runoff from unpaved roads that occur adjacent to vineyards and also throughout vineyard properties.

Applicability

For the purposes of the General Permit, the term "Vineyard Property" is defined to include all contiguous parcels under the same ownership, where some part is planted in grapes. A "Discharger" is any person who discharges waste (e.g., a pollutant) that could affect the quality of waters of the state, and includes any person who owns a Vineyard Property, or is responsible for its operation. Point source discharges from on-site winery production facilities are not included in this General Permit.

The General Permit conditionally authorizes discharges of pollutants to the waters of the State that originate on vineyard properties. It does not authorize, approve, or permit construction of a vineyard and/or related infrastructure. To apply for coverage under the General Permit, a Discharger would submit a Notice of Intent (NOI) and filing fee to the Water Board. A complete NOI provides the Water Board with specific information related to the Vineyard Property.

Within the project area, the proposed General Permit would regulate discharges from the following types of vineyard properties as shown in Figure 2-2 and as described in Table 2-1:

- All existing vineyard properties (including replants) where five acres or more are planted in grapes.
- All new vineyards of five acres or more, developed on slopes ≤ 30 percent, except for "high potential sediment delivery" vineyard properties (which given their higher potential risk, would be required to apply for individual permits), as described further below.
- Any Vineyard Property, regardless of acreage, deemed by Water Board staff to discharge waste that could adversely affect water quality and which could be adequately regulated through enrollment in the proposed General Permit.

Based on GIS analysis, up to an estimated 70 percent of the total Vineyard Property acreage and 90 percent of the planted vineyard acreage within the project area would be required to enroll in the proposed General Permit (Appendix A).

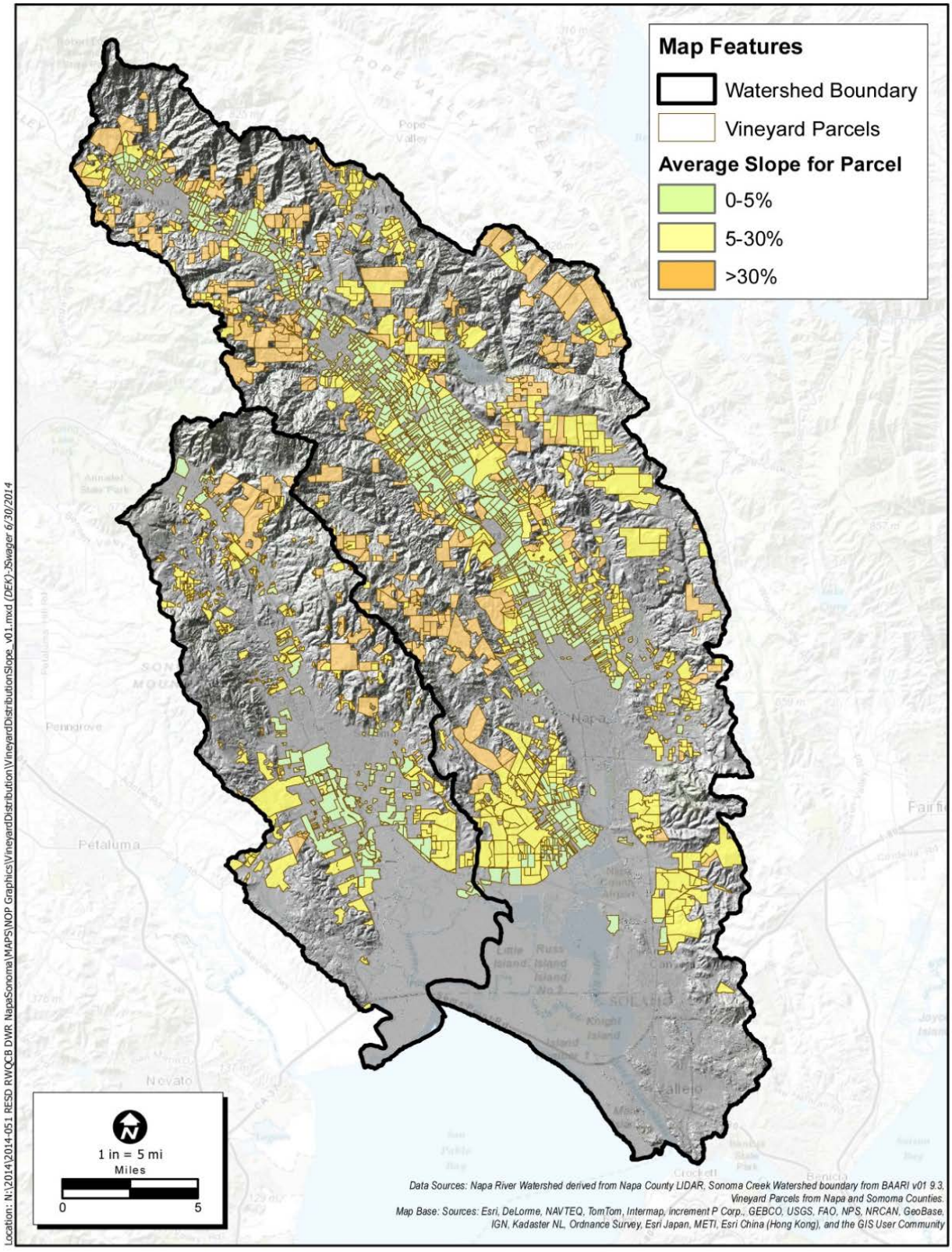


Figure 2-2. Existing Vineyard Properties

Table 2-1: Summary of General Permit Eligibility, Exclusion, and Exemption Criteria

Site Type	General Permit Definition	Covered by General Permit	Not covered by General Permit	Excluded from General Permit[1]
		Requirement	***Requirement***	***Requirement***
		Submit a Notice of Intent to seek coverage under the General Permit and comply with requirements of the General Permit	*Not required to seek coverage under the General Permit*	*Submit a Report of Waste Discharge to seek coverage under individual WDR*
Small Vineyard	Vineyard < 5 planted acres, irrespective of slope		X[2]	
New and Existing Vineyards	Vineyards ≥ 5 planted acres	X[3]		
Forest to Vineyard Conversions	Any proposed vineyard that requires a Timber Conversion Plan			X
New Steep Slope Vineyards	Proposed vineyards on slopes > 30			X
New Ridgetop Vineyards	Any proposed vineyard developed on a flat topographic divide above divergent and descending slopes where one or more of the descending slopes has a natural slope steeper than 50 percent for more than 50 feet in slope length			X

[1] Any vineyard, regardless of site type, that cannot or fails to meet the requirements of the General Permit would be excluded from the General Permit and would be required to submit a report of waste discharge to seek coverage under individual WDR.

[2] Any vineyard, regardless of size, that is deemed by Water Board staff to discharge wastes that could affect water quality may be regulated through the proposed General Permit or, depending on site conditions, may be required to submit a report of waste discharge to seek coverage under individual WDR.

[3] Except for vineyards that meet the definition for forest to vineyard conversions, new steep slope vineyards, or new ridgetop vineyards.

The following “high potential sediment delivery” vineyard properties would not qualify for coverage under the proposed General Permit, given their higher potential impact on the existing habitat and increased potential for soil erosion. These properties would instead be required to submit applications for an individual WDR:

- Any proposed vineyards that require a Timber Conversion Plan or ;
- Vineyards proposed on ridgetop areas; or
- New vineyards on slopes of 30 percent or more.

The distribution of existing vineyard properties across both watersheds, by slope categories, is shown in Figure 2-2. Some of the existing vineyards in the 0-to-5 percent slope range would meet the “low sediment delivery” criteria described above. Existing vineyards on slopes greater than 30 percent are highlighted to identify areas expected to have a higher potential for erosion.

As discussed above, based on the five acre-or-more planted in grapes criteria, up to 90 percent of the total acreage planted and up to two-thirds of the total Vineyard Property acreage, could be regulated by the Water Board via the proposed General Permit.

General Permit Requirements

The General Permit requires Dischargers to prepare a Farm Water Quality Protection Plan (Farm Plan), as specified in Appendix A, and as described below. The Farm Plan documents natural features, developed areas, and best management practices (BMPs) implemented to achieve the following performance standards:

a) **Soil Erosion in the farm area**[18]: soil loss rate ≤ tolerable soil loss rate. The tolerable soil loss rate is as defined by the USDA Soil Conservation Service (1994)[19].

b) **Sediment delivery from existing unpaved roads**: a) culvert inlets have low plug potential[20]; b) critical dips are installed at crossings with diversion potential; and c) ≤ 25 percent of the total length of unpaved roads is hydrologically connected[21].

c) **Sediment delivery from new/proposed roads**: entire road is storm-proofed (see Table 2-2 below).

[18] The Farm Area at a minimum includes all vineyard blocks, lanes, and avenues. Vineyard lanes and avenues are the field roads along the edges and/or in between the vineyard blocks.

[19] A “hillslope vineyard” is defined by an area where grapes are planted on an average slope > 5 percent. Hillslope vineyards, in addition to achieving the performance standard for soil erosion in the farm area, must also achieve the performance standard(s) for storm runoff as specified immediately below.

[20] Trash barriers or deflectors are installed where needed. For additional guidance, please see Weaver et al., (2014), “Culvert Inlet and Outlet Treatments”, pp. 137-143.

[21] Hydrologic connectivity refers to the length or proportion of a road that drains runoff directly to streams or other water bodies. Any road segment that has a continuous surface flow path to a natural stream channel during a storm runoff event is termed a hydrologically connected road or road reach. Connectivity usually occurs through road ditches, road surfaces, gullies, or other drainage structures or disturbed surfaces. Road located on valley-floor vineyard properties are located on gently sloping terrain (≤ 5 percent). Therefore, erosion rates are much lower and runoff and/or entrained sediment is often stored or detained in surface depressions and/or in vegetated areas.

d) **Storm Runoff from an existing hillslope vineyard**[22]: shall not cause or contribute to downstream increases in bed and/or bank erosion (see below, Attainment of Runoff Performance Standard).

e) **Storm runoff from a new hillslope vineyard**[23]: a) peak storm runoff in 2-, 10-, 50-, and 100-year (24-hour duration) events following vineyard development shall not be greater than pre-development; and b) shall not cause or contribute to downstream increases in bed and/or bank erosion (see below, Attainment of Runoff Performance Standard).

f) **Pesticide management**: an integrated pest management program shall be developed and implemented for the vineyard, and effective practices shall be implemented to avoid mixing, storing, or applying pesticides near wells and surface waters, or in ways that could contribute to receiving water toxicity.

g) **Nutrient management**: best management practices to guide nutrient applications (e.g., fertigation, cover crops, soil amendments, plant and/or soil testing) shall be implemented such that discharges do not contribute to a violation of water quality standards.

Table 2-2: Characteristics of Storm-Proofed Roads

Stream Crossings

- All stream crossings have a drainage structure designed for the 100-year flood flow (including woody debris and sediment).
- Stream crossings have no diversion potential.
- Culvert inlets have a low plug potential (trash barriers or deflectors are installed where needed).
- Culverts are installed at the base of the fill and in line with the natural channel.
- Deep fills (deeper than a backhoe can reach from the roadbed) with undersized culverts or culverts with high plugging potential are fitted with an emergency overflow culvert.
- Emergency overflow culverts (as applicable; see immediately above) have full round, anchored downspouts that extend to the natural channel.
- Bridges have stable, non-eroding abutments and do not significantly restrict 100-year flood flow.
- Stream crossing fills are stable.
- Approaching road surfaces and ditches are “disconnected” from streams and stream crossing culverts to the maximum extent feasible using road shaping and road drainage structures.

[22] A hillside vineyard is one where the area of cultivation occurs on an average slope ≥ 5 percent. A vineyard developed entirely on a slope less than 5 percent is referred to as “valley floor vineyard”.

[23] A “new vineyard” is any vineyard that is ≥ 5 acres that is established subsequent to adoption of this Order.

- Class I (fish-bearing) stream crossings meet State Fish and Wildlife and National Marine Fisheries Service fish passage criteria.

Road Surface Drainage

- Road surfaces and ditches are hydrologically "disconnected" from streams and stream crossing culverts. Road surface runoff is dispersed, rather than collected and concentrated.
- Ditches are drained frequently by functional ditch relief culverts and/or rolling dips.
- Outflow from ditch relief culverts does not discharge to streams.
- Ditches and road surfaces drainage does not discharge (through culverts and/or rolling dips) onto active or potential landslides, and/or into gullies.
- Fine sediment contributions from roads, cutbanks, and ditches are minimized by utilizing seasonal closures and installing a variety of surface drainage techniques including road surface shaping (outsloping, insloping or crowning), rolling dips, ditch relief culverts, water bars and other measures to disperse road surface runoff and reduce or eliminate sediment delivery to the stream.

Attainment of the Storm Runoff Performance Standard for Hillslope Vineyards

Attainment of the performance standard for bed and bank erosion would be evaluated through: a) review of available information (e.g., property land-use and natural disturbance history, vineyard design and management practices, mapping of natural and engineered drainage features, soil and geologic mapping, and topographic mapping); and b) field survey beginning at the point(s) of discharge from the vineyard along hillslope overland flow pathways and into the receiving channel, downstream to the first response reach (e.g., gravel-bedded channel reach with a streambed slope ≤ 0.02), and/or to the property boundary (whichever is encountered first).

At sites where hillslope vineyards discharge into an unstable area[24] (whether or not concentrated runoff from the vineyard is the primary cause or could be a contributing factor to the erosion), as a precaution, the Water Board may require that additional BMPs be implemented to attenuate vineyard storm runoff. For example, these may include no-till cover crops, application of composted mulch, soil amendments to increase organic matter content (e.g., crop residues, manure, and/or compost), installation of level-spreaders, disconnecting existing drainage pipe systems, and/or construction of detention basins and/or wetlands. The Water Board also may require soil bioengineering and/or biotechnical techniques to control erosion in actively eroding gullies and landslides, and also in channel reaches that are down-cutting and/or head-cutting. Examples of soil bioengineering and/or biotechnical techniques are described in in Marin Resource Conservation District (2007).

Farm Plans

As specified in Appendix A, Vineyard Property Dischargers would be required to prepare a Farm Water Quality Protection Plan (Farm Plan). The Farm Plan would be based on an inventory of the vineyards, roads, reservoirs, and waterways located throughout the Vineyard Property to document the conservation practices already in-place, and/or to prescribe additional best management practices (BMPs) that will be implemented and maintained to comply with all conditions of this Order including

[24] These include hillslope vineyard discharges into down-cutting and/or head-cutting channels, gullies, and/or or landslides,

achievement of applicable performance standards for discharge, and also to document the actions taken to protect and/or enhance stream-riparian habitat complexity and connectivity. . Management practices and implementation projects must address all sources of pollutants related to vineyard facilities and roads, including: surface erosion and excessive runoff from vineyards, road sediment discharge, nutrient and pesticide use and management; and sediment delivery from unstable areas such as gullies, incised channel reaches, and landslides. The Farm Plan also includes a specific time schedule and corresponding milestones to measure progress toward attainment of the Vineyard Property performance standards, and a monitoring plan to document BMP implementation and assess the effectiveness of BMPs.

2.4. Project Characteristics

CEQA requires that the EIR include a general description of the project's technical, economic and environmental characteristics (CEQA Guidelines Section 15124). The General Permit sets forth requirements for the protection of water quality from vineyard properties. Through compliance with those requirements, Dischargers could cause a physical change to the environment. As such, the "project characteristics" are the standards required in the General Permit and the reasonably foreseeable methods that Dischargers may use to satisfy the General Permit requirements. The project does not include the specific project features or site-specific impacts of the development and operation of any new vineyard or new unpaved road because the General Permit does not authorize, approve, or in any way support development of any new vineyard or road. Approval of new vineyard and/or road development projects would require a project-specific CEQA analysis performed by the appropriate lead agency. The EIR does anticipate that those types of developments will occur, however, and evaluates them as part of the potential cumulative impacts.

The General Permit regulates Vineyard Properties that have the potential to affect waters of the state including from areas of agricultural cultivation, reservoirs, and unpaved roads. It is not possible to foresee with a reasonable level of certainty the exact actions that would be taken by specific Dischargers to comply with their respective obligations in a particular location. Therefore, the EIR presents an evaluation that describes reasonably foreseeable impacts, but does not speculate on all possible impacts that might occur from the methods that could be used at a particular site or project specific level. For purposes of the EIR, the most likely methods of compliance were evaluated based on current industry practice.

The following methods for compliance have been selected as reasonably foreseeable actions and provide the basis for a reasoned, good-faith assessment of the potential significant environmental impacts of the General Permit.

2.5. Reasonably Foreseeable Means of Compliance

A wide array of best management practices (BMPs) to control erosion, reduce storm runoff, control nutrient discharges, and/or control pesticide discharges could be implemented throughout vineyard properties in the Napa River and Sonoma Creek watersheds in order to meet performance standards for discharge that are included as conditions of the General Permit. BMPs that could be implemented and affect the environment, regardless of level of impact, are listed in Table 2-3. This list of BMPs is based on review of: a) best management practices and site conditions observed at more than 100 vineyard properties where Water Board staff have conducted site inspections and/or reviewed farm plans prepared under the Fish Friendly Farming Program; b) the Farm Plan Template for the

LandSmart (Sonoma County RCD et al., 2015); c) “Best Management Practices for Agricultural Erosion and Sediment Control” (Sonoma County Agricultural Commissioner, 2013); d) “Groundwork, a Handbook for Small-Scale Erosion Control in Coastal California” (Marin RCD, 2007); e) “Handbook of Forest, Ranch, and Rural Roads” (Kleeman, 2014); and f) other sources as cited in the section that follows.

Many of the BMPs described below already are have been implemented at many vineyard properties in the Napa River and/or Sonoma Creek watersheds including: a) those that have previously implemented farm water quality protection plans under the Fish Friendly Farming Program (covering more than 34,700 acres) and/or the LandSmart Program (about 10,000 acres); b) road-erosion control projects and/or other erosion control projects completed in partnership with the Napa County and/or Sonoma Resource Conservation Districts, the USDA Natural Resources Conservation Service; and or c) those that have implemented erosion control plans for vineyards, as needed to comply with Conservation Regulations in Napa County, and/or the VESCO Ordinance in Sonoma County.

BMPs in Table 2-3 which follows are organized by pollutant source control category. Immediately following Table 2-3, each BMP is described in detail.

Table 2-3: Compliance Actions and Possible Environmental Effects

Pollutant Category	Likely compliance actions	Possible environmental effects
Soil erosion in farm area	• **BMP-1** Plant and maintain no-till or winter cover crop	• Increase in vegetation between rows, and reduction in tillage as compared to sites where cover crops are not adopted.
	• **BMP-2** Apply composted mulch between vine rows	• Increase in cover between rows and reduced tillage. Application once every two-or-more years.
	• **BMP-3** Install and maintain vegetated filter in farm area	• Possible minor reduction in land area cultivated, and/or minor increase in the native vegetation next to streams.
	• **BMP-4** Implement conservation tillage practices	• As compared to baseline, tillage is reduced, and crop residue &/or vegetation cover is increased.
	• **BMP-5** Grassed waterway	• Increase in vegetation cover and improved soil infiltration capacity.
	• **BMP-6** Construct diversion ditch	• Soil excavation in farmed area to construct ditch, installation of filter fabric, and rock to line the ditch. Ditch could change locations of runoff.
	• **BMP-7** Install engineered subsurface drainage pipes	• Excavation during vineyard development to install pipes and inlets, and rock/other energy dissipating materials. Backfill, stabilize, and revegetate. Only permissible where hillslope vineyard development doesn't significantly increase runoff, and/or discharge to an unstable area.

Table 2-3 (cont.): Compliance Actions and Possible Environmental Effects

Pollutant Category	Likely compliance actions	Possible environmental changes
Increases in storm runoff from hillside vineyards	• **BMP-1** Plant & maintain no-till &/or winter cover crop	• See description above
	• **BMP-2** Apply composted mulch between vine rows	• See description above
	• **BMP-3** Install and maintain vegetated filter strips	• See description above
	• **BMP-4** Implement conservation tillage	• See description above
	• **BMP-5** Grassed waterway	• See description above
	• **BMP-8** Disconnect and/or remove subsurface drainage pipes at an existing vineyard	• Soil excavation in farm area during vineyard replant to remove pipes; add local or imported soil to backfill holes/trenches; and minor grading to stabilize disturbed area.
	BMP-9 Construct level spreaders	• Use of on-site materials or importation of rock and level spreaders. May involve minor excavation and fill in uplands.
	• **BMP-10** Detention basin and/or constructed wetlands	• Mobilization/use of heavy equipment to remove vegetation and excavate detention basin or constructed wetland. Install pipes, valves, and inlet/outlet for detention basin. Backfill, stabilize, and revegetate after earth moving. May reduce vineyard footprint or be constructed in undeveloped uplands.

Table 2-3 (cont.): Compliance Actions and Possible Environmental Effects

Pollutant Category	Likely compliance actions	Possible environmental changes
Sediment delivery from gullies, shallow landslides, and/or unstable headwater channels	**BMP-11** Soil bioengineering techniques constructed using hand tools in gullies, and/or stream channels. These techniques do not involve use of rip-rap, toe-rock, and/or heavy equipment in channels. Specific techniques include: 11-a) willow wattles; 11-b) live fascines; 11-c) coir logs, 11-d) brush mattresses (without toe-rock); 11-e) willow walls; 11-f) shaping and/or revegetating (small gullies, drainage area ≤ 10 ac); 11-g) brush layering; and/or 11-h) construction of straw-bale, log, or brush check-dams (in small gullies).	• Minor construction, and/or minor earth moving using hand tools, and native plant establishment. • Increase in vegetation cover, reduction in fine sediment delivery to channels, and/or enhanced physical habitat structure in channels.
	BMP-12 Soil bioengineering techniques may involve placement of rock rip-rap and/or toe-rock, heavy equipment in channels, and/or construction of step-pool structures and/or engineered log jams in channels. Specific techniques may include: 12-a) brush mattresses with toe-rock; 12-b) rock check-dams or grade-control structures; 12-c) reshaping and revegetation together with placement of rock or rip-rap (in large gullies); 12-d) brush layering; 12-e) fabric reinforced earth fills (FREFs); 12-f) engineered log jams; and/or 12-g) step-pool structures.	• Mobilization and use of heavy equipment in wetlands and/or waters of the state, potentially significant earthmoving and/or construction. • Increase in vegetation cover, reduction in fine sediment delivery to channels, and/or enhanced physical habitat structure in channels.

Table 2-3 (cont.): Compliance Actions and Possible Environmental Effects

Pollutant Category	Likely compliance actions	Possible environmental changes
Road-related erosion	• **BMP-13** Install single-post track racks upstream of culverts with hand tools.	• Minor retrofit to culvert inlets. Beneficial reduction in downstream fine sediment supply.
	• **BMP-14** Construct water bars on unpaved roads	• Minor earth moving to construct small mounds along existing unpaved roads.
	• **BMP-15** Removal unstable road fill or side-cast	• May involve substantial earth moving and grading within the road prism of existing unpaved roads
	• **BMP-16** Reshaping road surface by outsloping and constructing rolling dips	• As above
	• **BMP-17** Installation of ditch relief culverts to disperse runoff	• As above
	• **BMP-18** Construction of critical dips adjacent to stream crossings to address diversion potential	• As above
	• **BMP-19** Decommissioning problem roads: Use of heavy equipment to rip road surface, construct cross-drains in road fill, remove unstable fill and/or side-cast, and remove stream crossings and stabilize disturbed areas.	• Earth moving and construction within and immediately adjacent to stream channels. • May involve substantial earth moving and grading within the road prism of existing unpaved roads (which are highly disturbed features under the baseline condition). Also, earth moving and construction within and immediately adjacent to stream channels.
	• **BMP-20** Construction of a new storm-proofed road segment to replace a decommissioned road segment (see Table 2-1)	

Table 2-3 (cont.): Compliance Actions and Possible Environmental Effects

Pollutant Category	Likely compliance actions	Possible environmental changes
Control of nutrient and pesticide discharges	• **BMP 1** Planting and maintaining cover crops • **BMP 21** Plant tissue and/or soil testing (to target application of nutrients). • **BMP 22** Regular calibration of pesticide sprayers and establishment of protocols to avoid drift into riparian and/or aquatic habitats. • **BMP 23** Implementation of integrated pesticide management practices. • **BMP 24** Construction of concrete pads and earthen berms to protect well heads from contamination. • **BMP 25** Construction of safe and secure storage facilities for pesticides. • **BMP 26** Implementation of fertigation practices	• Reduced rates of tillage (via more precise spatial and/or temporal application of nutrients, and/or increase in cover crops). • None, except for reduction in potential nutrient discharges. • Reduction in the frequency and significance of pesticide spills. • Minor reduction in pesticide use relative to baseline. • Minor construction projects associated with concrete pads, berms, and/or pesticide storage facilities; small increase in the area of impervious surfaces. • Lower rates of discharge of nutrients and pesticides

BMP-1 Planting and maintaining no-till or winter cover crops

Cover crops are grown in vineyards to control erosion, improve soil tilth, soil water holding capacity, control grape pests, and/or to improve soil fertility (UC Cooperative Extension, 1998, pp. 3-4). In vineyards, cover crops are typically planted between vine rows, sometimes also along vineyard avenues, and rarely also beneath the grapevines (Figure 2-3). Cover crops typically are grasses (e.g., barley, fescue) or legumes (e.g., clovers or vetches), which can be annual or perennial species. No-till cover crops can be perennials or annuals. Winter cover crops are typically seeded in the fall, when the soil is warm, and established either through irrigation or early season rainfall. The seedbed typically is prepared by tilling the soil to a depth of about 1 foot. Cover crops typically require fertilization in order to become well-established, and often benefit from mowing.

Within the project area, use of winter or no-till cover crops is nearly ubiquitous, as a means to protect and enrich vineyard soils, and also to protect vineyard avenues from erosion (see p.3 this document, and Napolitano, 2008). Growers are able to choose from a wide variety of cover crops to select types that are compatible with site constraints, and/or agricultural management and production objectives.

Figure 2-3: Winter cover crops established under vines and beneath vine rows at this site.

BMP-2 Application of composted mulch to provide ground cover

Composted mulch, typically derived from the decomposition of leaves, grass, manure, and/or grape pomace, would be applied to a depth of 3-to-6 inches to provide a ground cover in vine rows and/or

avenues to control of soil erosion (Figure 2-4) and/or mechanically mixed into the soil to improve soil fertility, and tilth (CA Integrated Waste Management Board, 2002). The use of composted mulch is becoming common within the project area. Where composted mulch is economical to implement, it is reasonably foreseeable that this BMP could be used to achieve the soil erosion and/or storm runoff performance standards that are conditions of the General Permit.

Figure 2-4: Application of composted mulch as ground cover in a vineyard

BMP-3 Establishing and maintaining a vegetated filter strip

A vegetated filter strip (Figure 2-5) is an area of vegetation that is planted intentionally adjacent to a farm to remove sediments and other pollutants from farm runoff (UC Cooperative Extension, 2006). Vegetated filter strips can be quite effective for capturing/depositing sediment that is entrained in runoff from farming areas (Liu et al., 2008). Vegetated filter strips may be implemented to attain the performance standard for vineyard soil erosion. Filter strips may be implemented on valley floor vineyard properties. Typical width would be 35 feet. Filter strips are planted perpendicular to the direction of runoff, using tall dense grasses (or other vegetation with substantial roughness at the ground surface). Filter strips require periodic seeding, mowing, and minor sediment removal or regarding to maintain sheetflow. Vineyard avenues can be converted to vegetated filter strips. It is reasonably foreseeable that vegetated filter strips also could be constructed within the footprint of the vineyard, where it is economically feasible to do so[25]. Where this is not the case, it is reasonable to conclude that cover crops, composted mulch, and/or other BMPs to control vineyard soil erosion would be implemented instead.

[25] Where a square vineyard drains in two directions, and where a vineyard avenue (20-foot width) could be dual-purposed to also function as a filter strip, at a 10-acre vineyard, to establish a filter strip (35-foot width), the maximum reduction in vineyard planted area, assuming no additional open space is available, would require that about 0.5 acres of the vineyard be converted to a filter strip.

Figure 2-5: An example of a vegetated filter strip adjacent to row crops (photo credit: Central Coast Wildlands, 2012)

BMP-4 Implementing conservation tillage

Conservation tillage refers to a suite of management practices that involve actions to enhance cover and/or to reduce the intensity of tillage (Blanco and Lal, 2010, p. 75-77) in order to control soil erosion and/or increase soil water holding capacity including: no-till cover crop, winter cover crop, composted mulch (as a ground cover over tilled soils), orienting rows along contour, planting vegetated filter strips along edges of the farming area. In the EIR, this term refers to use of more than one of these practices at the same property.

BMP-5 Grassed waterway

A vegetated channel, natural or engineered, that is managed and/or designed to slow and disperse concentrated runoff generated from within the farming area and/or off-site (USDA Natural Resources Conservation Service, 2010a). Streamflow conveyance capacity of the channel is greater than or equal to the estimated peak discharge following a 10-year 24-hour storm event. Grassed waterway construction may involve soil excavation and grading, and stabilization of areas disturbed by construction (e.g., straw mulch, jute or coir netting, erosion control blankets, seeding or planting native plant species).

BMP-6 Diversion ditch

A diversion ditch is an engineered channel constructed across slope to intercept and re-route concentrated runoff away from areas that could otherwise be eroded. A diversion ditch can be earthen or rock-lined, and is vegetated per NRCS Critical Area Planting Standards (USDA Natural Resources Conservation Service, 2010b). The diversion is integrated into other natural or engineered drainage, at grade, and with proper energy dissipation (as needed). Streamflow conveyance capacity is greater than or equal to the estimated peak discharge following a 10-year 24-hour storm event. Ditch construction may involve soil excavation and grading, and stabilization of areas disturbed by construction (e.g., straw mulch, jute or coir netting, erosion control blankets, seeding or planting native plant species).

BMP-7 Subsurface drainage system

At many existing vineyards within the project area, engineered subsurface drainage pipes (USDA Conservation Practice 620, USDA Natural Resources Conservation Service, 2010c) have been installed to collect surface runoff. When soil infiltration capacity is exceeded, surface runoff enters the drainage pipes at drop inlets installed flush with the ground surface in the vine rows. The inlets are spaced close enough to capture runoff before it becomes sufficiently concentrated to cause significant erosion. Subsurface drainage pipes after collecting and conveying vineyard runoff, then discharge at surface outlets, which may include energy dissipation structures at points of discharge that are located on hillslopes and/or in channels. Engineered drainage pipes are installed at least two feet below the ground surface to avoid potential damage by tillage. Pipes can be solid or perforated. If perforated, then filter fabric and drainage rock also are installed to avoid sediment being entrained into the pipe. Where pipes are perforated, some of the groundwater flow through the site also can be conveyed through the drainage pipe.

Figure 2-6: Drainage pipe installation at a vineyard in Mendocino County.

As described in Section 1.1, and as described in USDA Natural Resources Conservation Service (2010c, p. 620-2), subsurface drainage pipes also can cause storm runoff to be substantially concentrated in time and/or space. Where intensive engineered drainage is installed at a sensitive site – including hillslope sites underlain by soft sedimentary bedrock types and/or where a forest is converted to develop a vineyard – storm runoff increases can be substantial, often causing gully and/or landslide erosion along hillslope overland flow pathways and/or head-cutting and/or downcutting in channels at/or near the point(s) of discharge from the vineyard (Water Board, 2009a, p.18; Napolitano, 2008). Also as described in Section 1.1, where a vineyard is developed at a site that was intensively grazed during the historical period, where hillslope gullies and landslides are actively eroding, and/or channels are head-cutting and/or down-cutting, even modest changes in the location and/or intensity of peak runoff caused by vineyard development and/or use of engineered drainage, can accelerate this erosion.

Therefore, at a proposed vineyard, drainage pipes only would be a permissible BMP where modeling indicates that vineyard development wouldn't increase storm runoff, and/or the proposed vineyard doesn't discharge into an unstable channel.

BMP-8 Disconnection and/or removal of drainage pipes

As needed, the effect of the subsurface drainage pipes on storm runoff can be addressed by capping the drop inlets (to the pipes) that are located on the ground surface in the vine rows, and/or by removing the pipes. Considering costs of excavation and the potential for significant disturbance to the vineyard, it is reasonably foreseeable that removal of drainage pipes, where this occurs, would coincide with the timing of a vineyard replant. During a vineyard replant, vines and trellises are removed, and typically the soil is deeply ripped (Cooper et al., 2012). Excavation at that time would be confined within the farming area. A backhoe or excavator and dump truck would be used to excavate and remove the pipes. The excavator or backhoe would then be used to backfill the voids resulting from pipe removal; local stockpiled soil or imported soil would be use. The disturbed areas would then be graded, to conform to the layout of the vine rows.

BMP-9 Construction of Level Spreaders

A level spreader (Figure 2-7) is a small depression excavated perpendicular to a point of discharge of storm runoff (in this case form a hillslope vineyard) that is designed to slow the runoff and then allow it to be dispersed uniformly over a wider area to enhance potential infiltration and dissipate the energy of the sheetflow. This BMP could be implemented to attain the performance standards for vineyard soil erosion and/or storm runoff that are conditions of the General Permit (Appendix A). Level spreaders only are designed to accommodate low volumes of runoff, and they require regular maintenance/repairs (e.g., minor sediment removal, occasional regarding, vegetation management, etc.) in order to continue to function correctly. Level spreader construction involves:

- Use of on-site earth materials or importation of rock and sheet-flow spreaders to construct features to disperse storm runoff.
- May involve minor excavation and fill in upland areas

Excavation of soil to construct the level spreader may involve use of heavy-equipment. Excavation or construction would occur adjacent to the vineyard in previously undisturbed upland habitats.

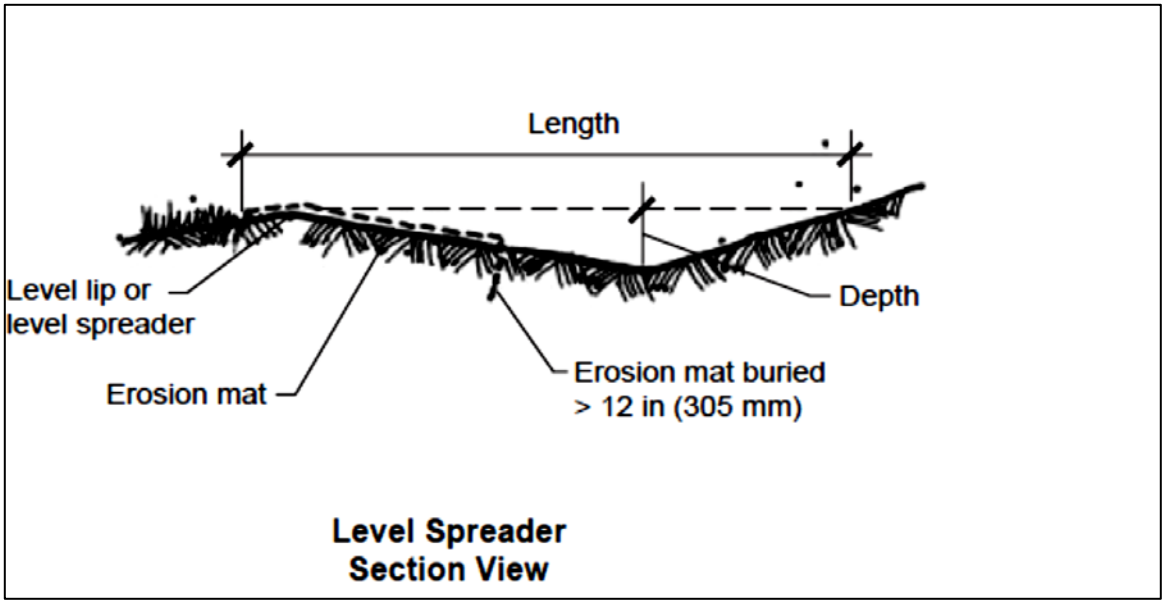


Figure 2-7: Conceptual layout of a level spreader

BMP-10 Stormwater detention basin or constructed wetland

A stormwater detention basin is an impoundment (i.e., dam) that is constructed to provide short-term detention of storm runoff in order to attenuate peak runoff magnitude and to control hillslope erosion and/or channel scouring (Figure 2-7). This BMP could be implemented at some vineyard properties to achieve the storm runoff performance standards that are included as conditions of the General Permit (Appendix A). Construction of a detention basin could occur within the developed footprint of the hillslope vineyard, and/or in adjacent undeveloped areas[26]. Detention basin construction may involve significant earth moving, excavation, and grading. If constructed in a previously undeveloped hillslope site, it also would involve vegetation clearing and grubbing. A general rule, basin size equals about 2-to-3 percent of the contributing drainage area (USEPA, 2014), which in this case would be the vineyard. In summary detention basin construction involves:

- Surface grading/natural vegetation removal or vine removal
- Basin excavation using typical construction equipment (excavator, backhoe, dump truck)
- Soil stockpiling/disposal/reuse
- Groundwater dewatering (if needed due to site-specific conditions)
- Drainage pipe/inflow ditch installation
- Final grading
- Erosion control actions/Bank reseeding

[26] However, where compliance with the General Permit would require conversion of timberlands, there is no authority to discharge under the General Permit. These vineyard properties would be required instead to obtain coverage under individual waste discharge requirements.

A constructed wetland (Figure 2-9) may be built at a hillslope Vineyard Property, where storm runoff peak and/or volume discharged from a vineyard is a concern or there is evidence of an active erosional response on a hillslope and/or in a headwater channel at/near the point(s) of discharge from the hillslope vineyard, as needed to comply with the performance standards for storm runoff that are contained in the General Permit. Building a constructed wetland involves:

- Surface grading/vegetation removal
- Wetland excavation using typical construction equipment (backhoe, dump truck)
- Install inlet/outlet control structure installation
- Construct auxiliary spillway or inlet bypass
- Use planting medium conducive to wetland plants and retention of contaminants
- Establish wetland plants
- Maintain water supply
- Provide flood event protection
- Construct at least two rows of functionally parallel cells with sufficient length-to-width ratio
- Control seepage
- Maintain access

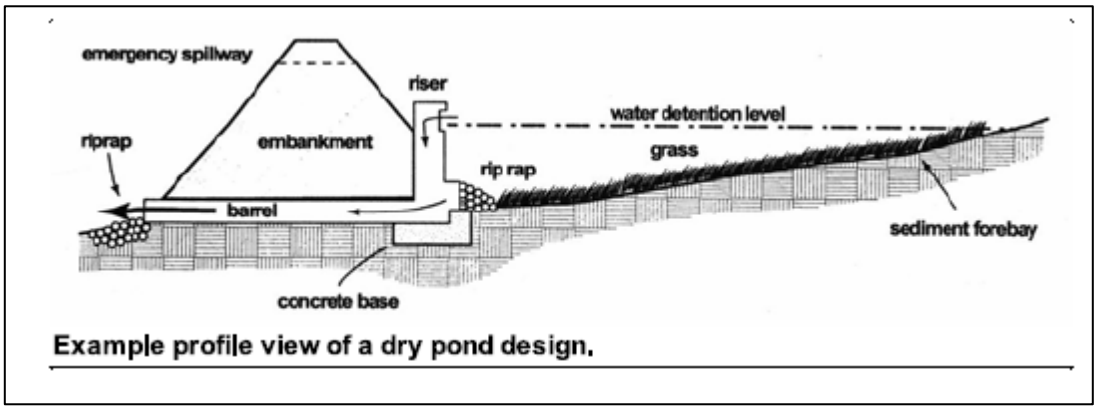


Figure 2-8: Conceptual Layout of a Dry Detention Basin

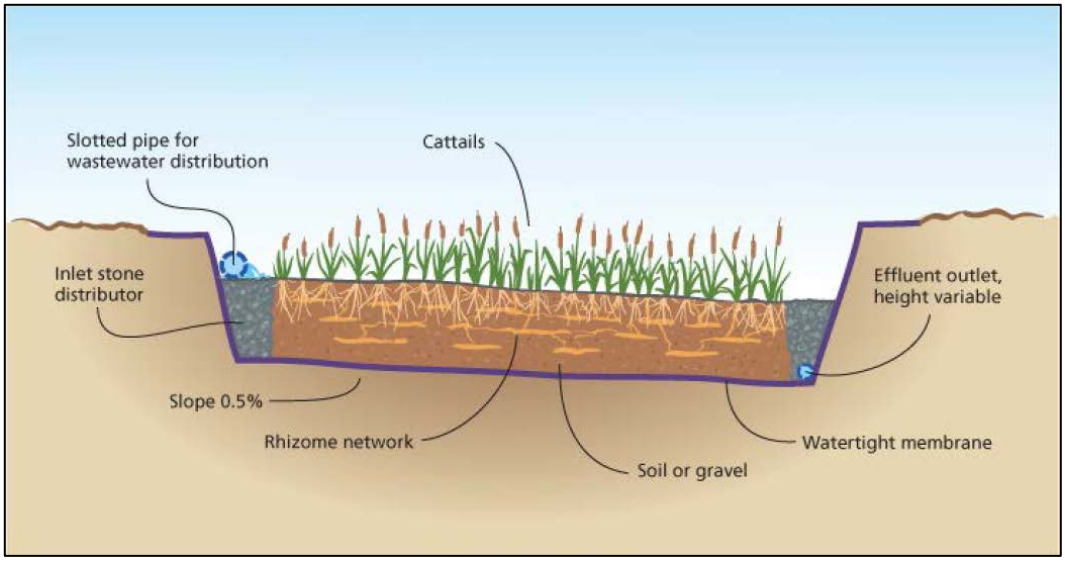


Figure 2-9: Cross-section of Constructed Wetland Schematic of Subsurface-flow

BMP-11 Soil Bioengineering Techniques (that do not involve use of rip-rap or toe-rock, and/or heavy equipment operation in channels)

Soil bioengineering is "an applied science that combines structural, biological, and ecological concepts to construct living structures (plant communities) for erosion, sediment, and flood control" (USDA Forest Service, 2002). Soil bioengineering is an effective tool for treatment of a variety of unstable and/or eroding sites. Soil bioengineering may be used at some vineyard properties to control erosion in unstable headwater channels and/or to stabilize landslides or gullies, as needed at some sites to satisfy the performance standard for storm runoff from hillslope vineyards. All of the techniques presented below do not involve use heavy-equipment, and/or placement of rip-rap and/or toe-rock:

a) Construction of willow wattles, live fascines, brush mattresses, willow walls, coir logs to control bank erosion in gullies or headwater channels;

b) Reshaping of slopes and revegetation with native plant species at head-cuts in small gullies (drainage area ≤ 10 acres); and

c) Construction of straw-bale, brush or log check-dams to control knickpoint erosion in small gullies (drainage area ≤ 10 acres).

BMP-12 Soil Bioengineering Techniques (that may involve use of rip-rap or toe-rock, and/or heavy equipment operation in channels)

BMP-12 is identical to BMP-11 except that the following soil bioengineering techniques may also involve use of rip-rap and/or toe-rock, and in some cases also the use of heavy equipment in channels (to place rock and/or large woody debris, and/or to key these materials into stream banks and/or the stream bed):

a) Construction of brush mattresses using toe-rock to control bank erosion;

b) Construction of rock check-dams or grade-control structures in large gullies;

c) Reshaping and revegetation of head-cuts together with placement of rock or rip-rap (in large gullies);

d) Constructing brush layering structures to control bank erosion in a channel or gully, and/or to stabilize a small landslide;

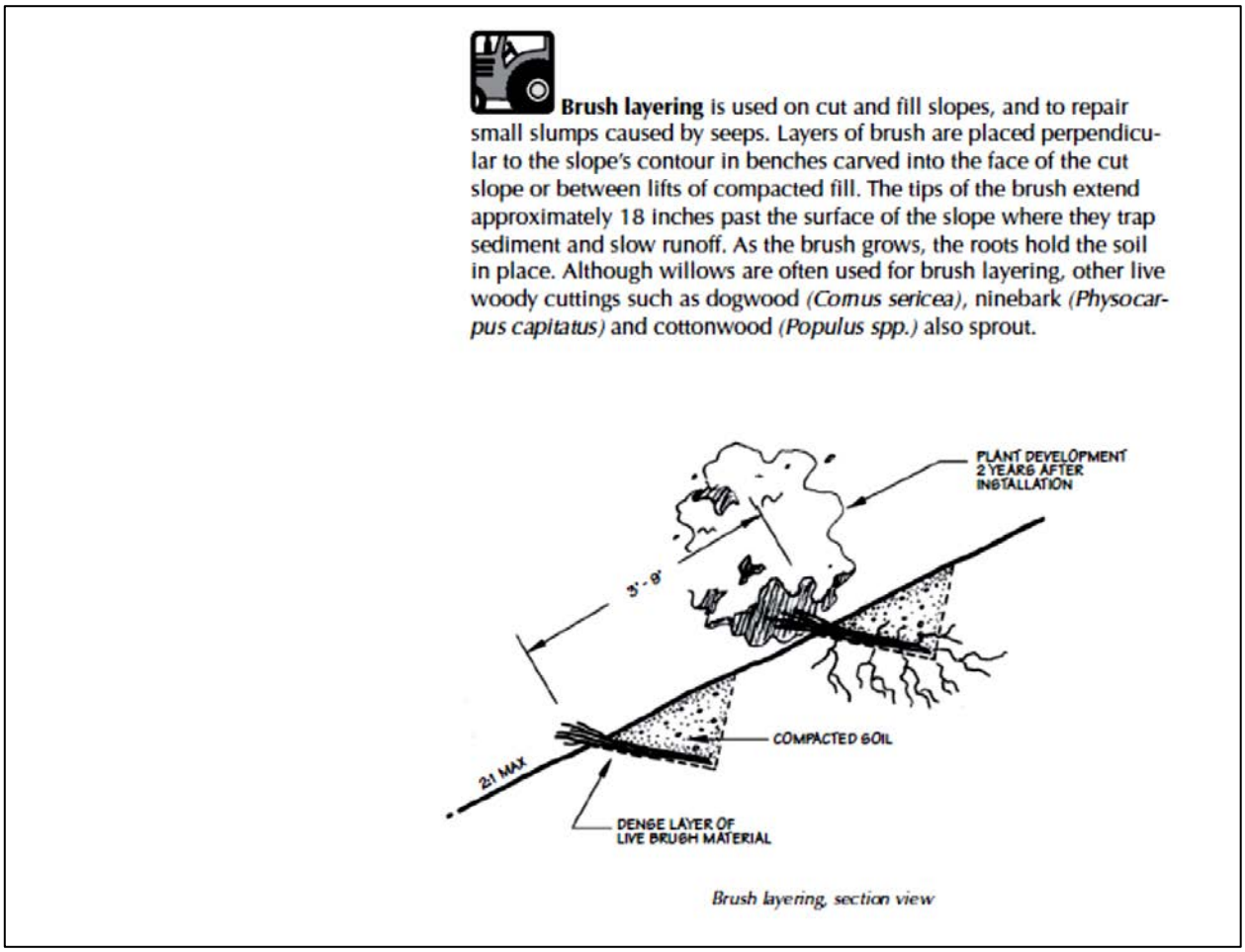
e) Construction of fabric reinforced earth fills (FREFs) to control bank erosion in channels;

f) Construction of engineered log jams to control down-cutting (log steps) and/or bank erosion (bank input jams) (see Cramer et al., 2012, Technique 7, and Appendix G); and/or

g) Construction of boulder or log step-pool structures to control head-cutting or down-cutting in an unstable headwater channel (Chin et al., 2009).

Figure 2-10 provides schematic illustrations of soil bioengineering techniques. Additional details regarding design and construction are described in Marin RCD (2007) at http://www.marincounty.org/~/media/files/departments/pw/mcstoppp/residents/groundwork.pdf, or as referenced above for step-pools in Chin et al. (2009), or engineered log jams, as described in Abbe and Montgomery (2003), and/or in Cramer et al. (2012).

Figure 2-10: Example Soil Bioengineering Techniques

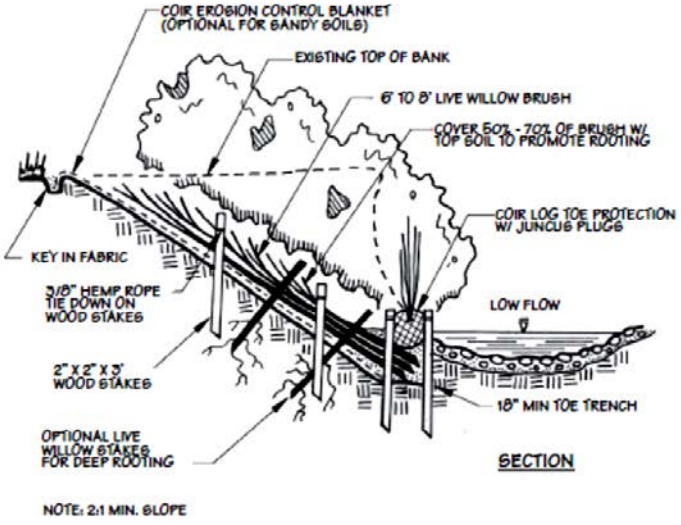


Marin RCD (2007)

Figure 2-10: Example Soil Bioengineering Techniques (continued)

A **brush mattress** is a dense layer of branches that is staked and firmly secured with rope. The butt ends of the brush are placed in a toe trench where they can be protected by coir logs or willow wattles. If willow branches are used and the site has sufficient moisture and sunlight, the branches will sprout. In shady areas, the mattress can be made with any brush and then interplanted with shade tolerant trees and shrubs. Use brush mattresses on banks with slopes no greater than 2:1 (2 feet in horizontal run for every 1 foot of vertical rise). If you think you need rock to protect the toe, seek professional advice. Remember that using rock in the channel may also increase the number and complexity of permits required.

Brush mattress

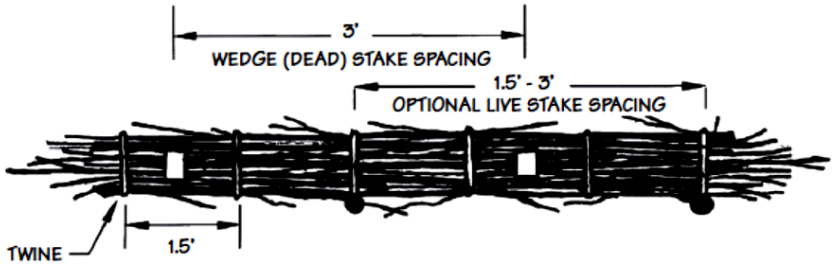


Brush mattress, section view

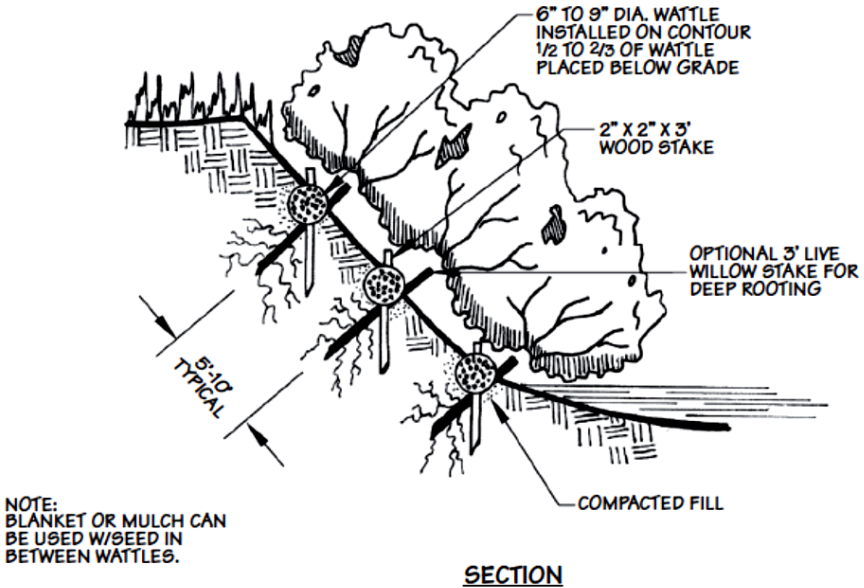
Source: Marin RCD (2007)

Figure 2-10: Example Soil Bioengineering Techniques (continued).

Wattles or **live fascines** are bundles of live cuttings, usually willow, bound together by rope. They can be staked by themselves in shallow trenches along the contour, or used in concert with other bioengineering techniques for toe stabilization. Willow wattles lend themselves beautifully to volunteer efforts and are easier to assemble when many hands, even very small ones, help.



TOP VIEW

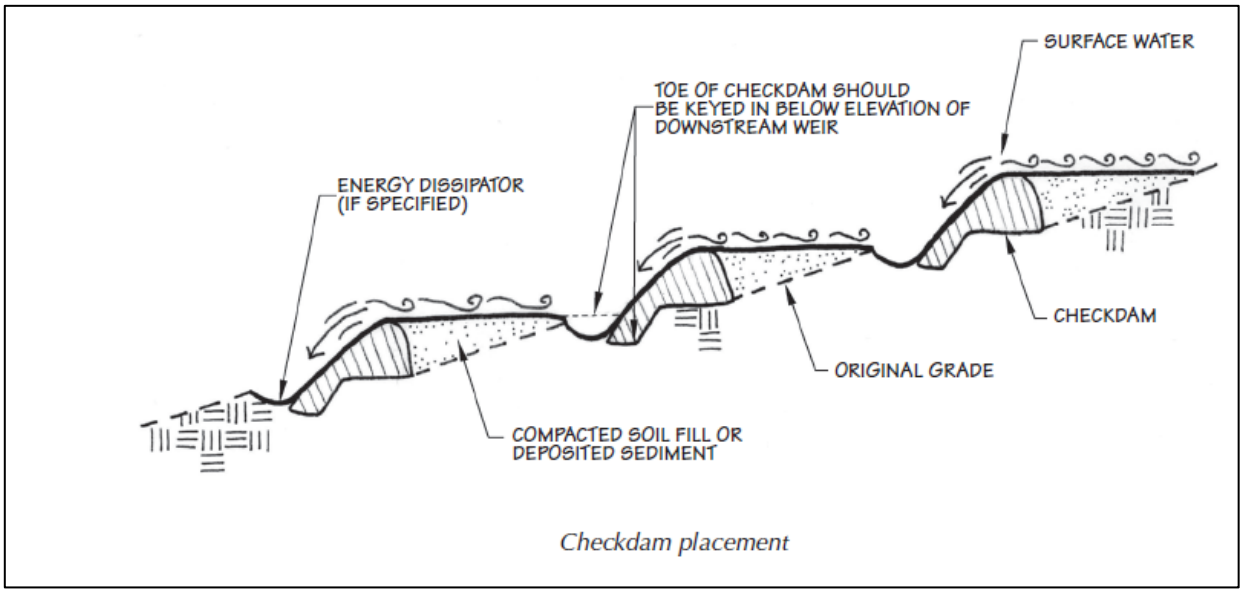


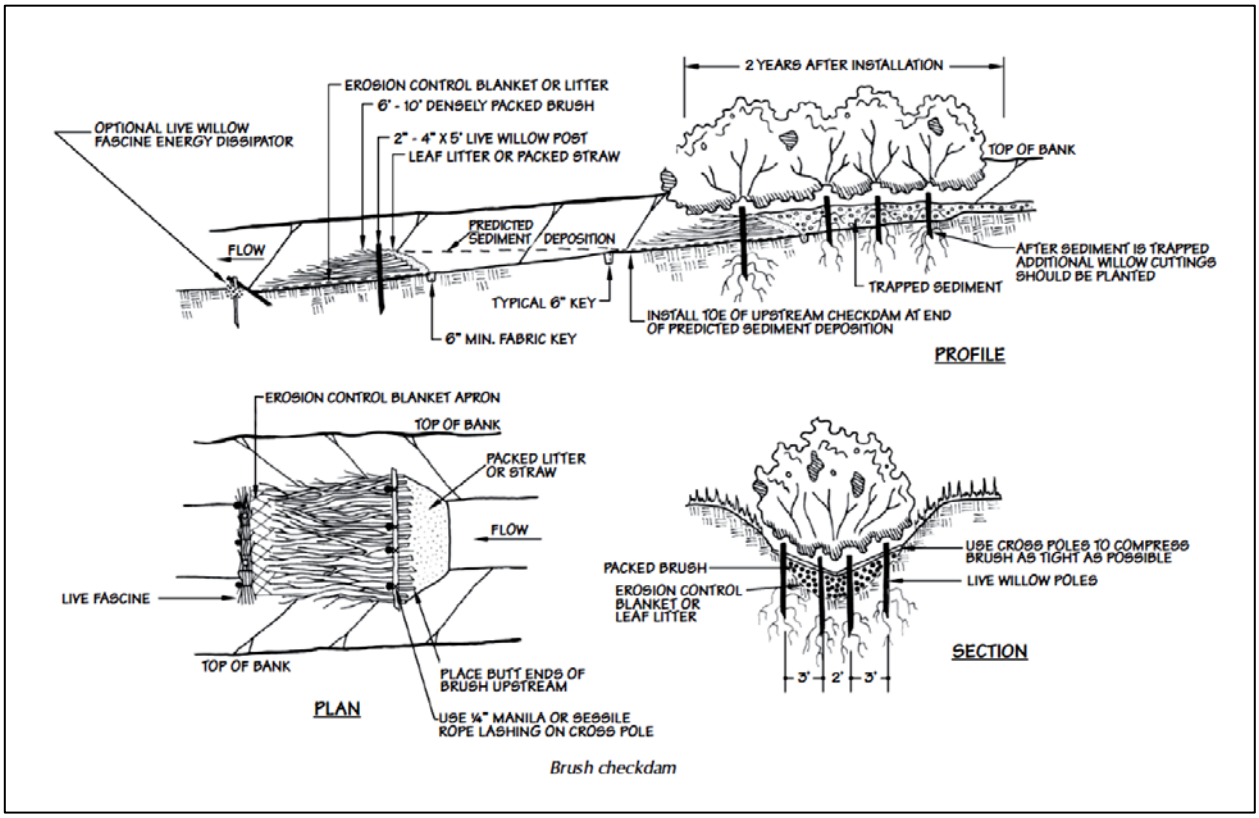
SECTION

Series of willow wattles on slope

Source: Marin RCD, 2007

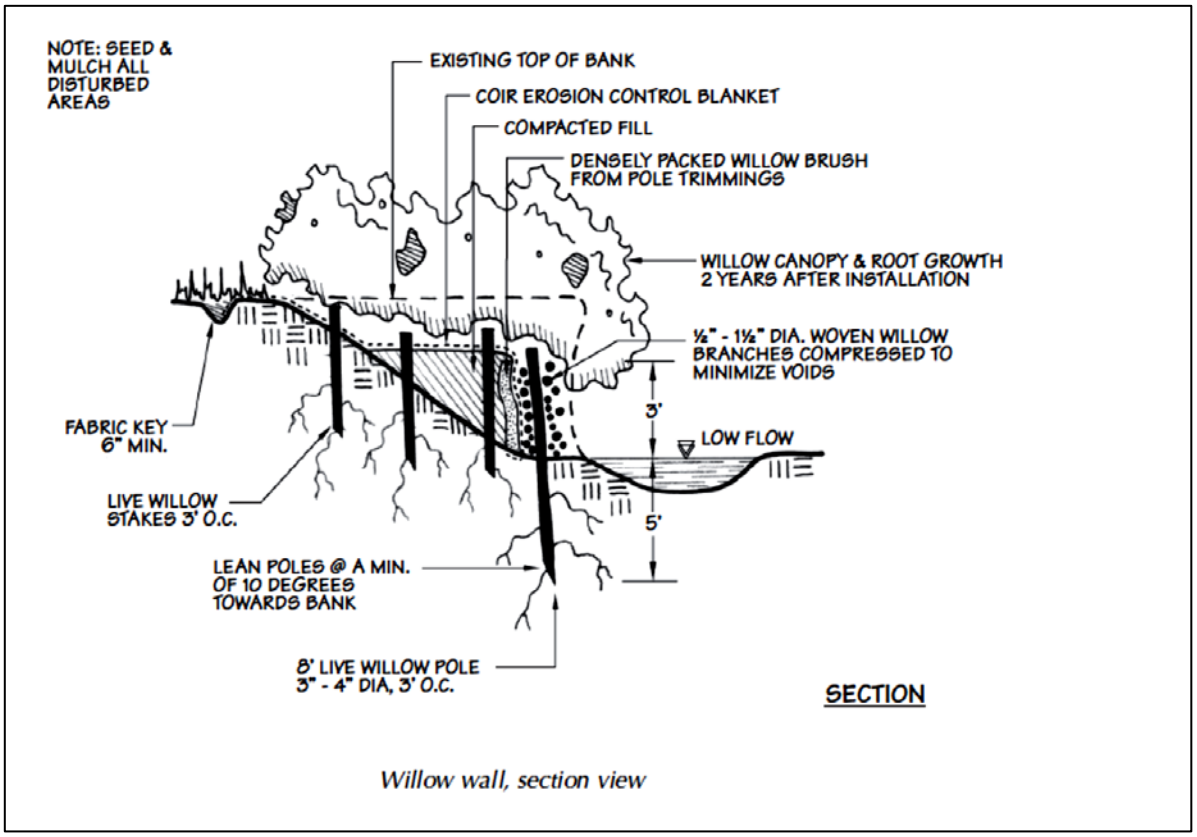
Figure 2-10: Example Soil Bioengineering Techniques (continued)



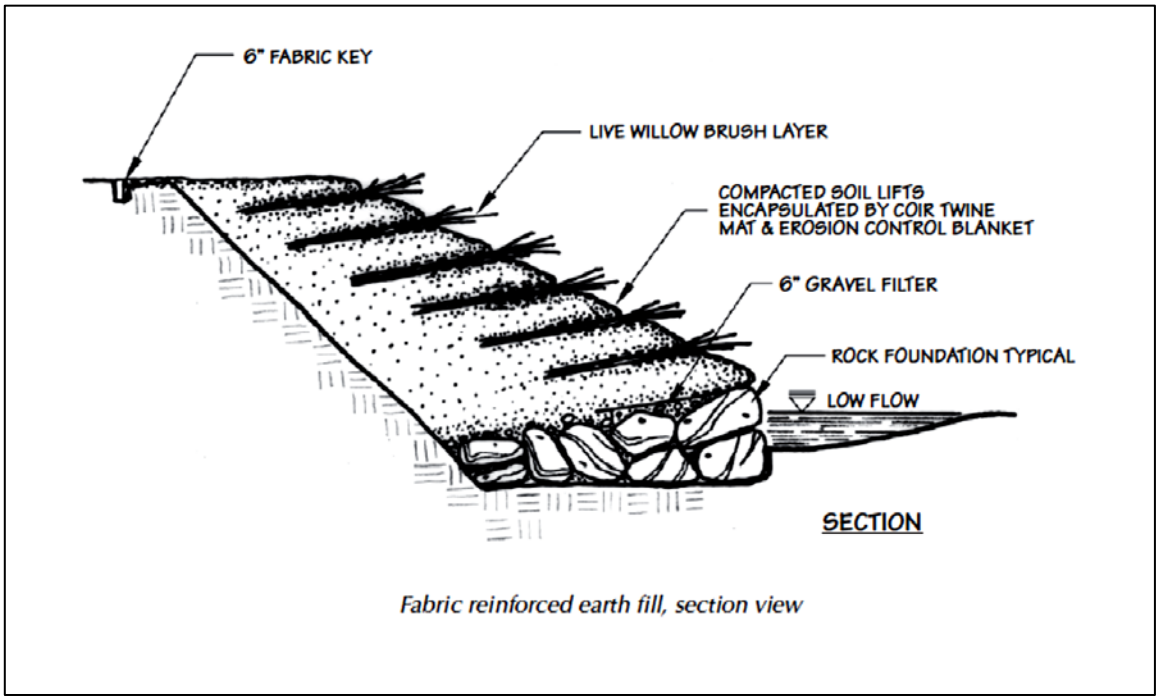


Schematic illustration of a brush check dam (Source: Marin RCD, 2007)

Figure 2-10: Example Soil Bioengineering Techniques (continued)



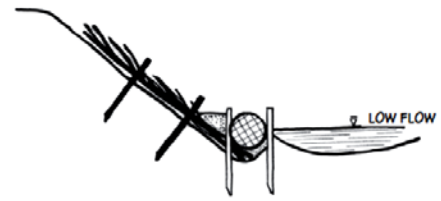
Willow wall, section view



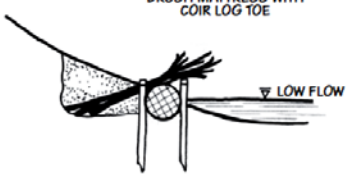
Fabric reinforced earth fill, section view

Source: Marin RCD, 2007

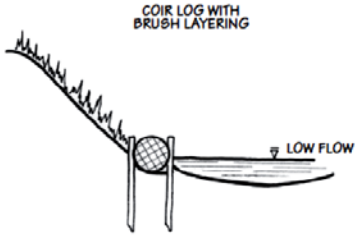
Figure 2-10: Example Soil Bioengineering Techniques (continued)



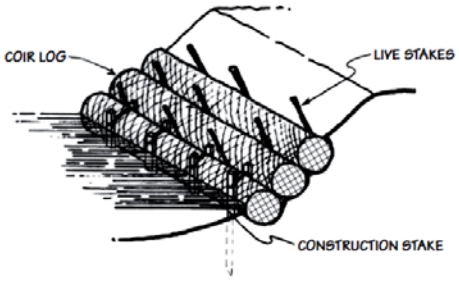
BRUSH MATTRESS WITH COIR LOG TOE



COIR LOG WITH BRUSH LAYERING



COIR LOG TOE PROTECTION



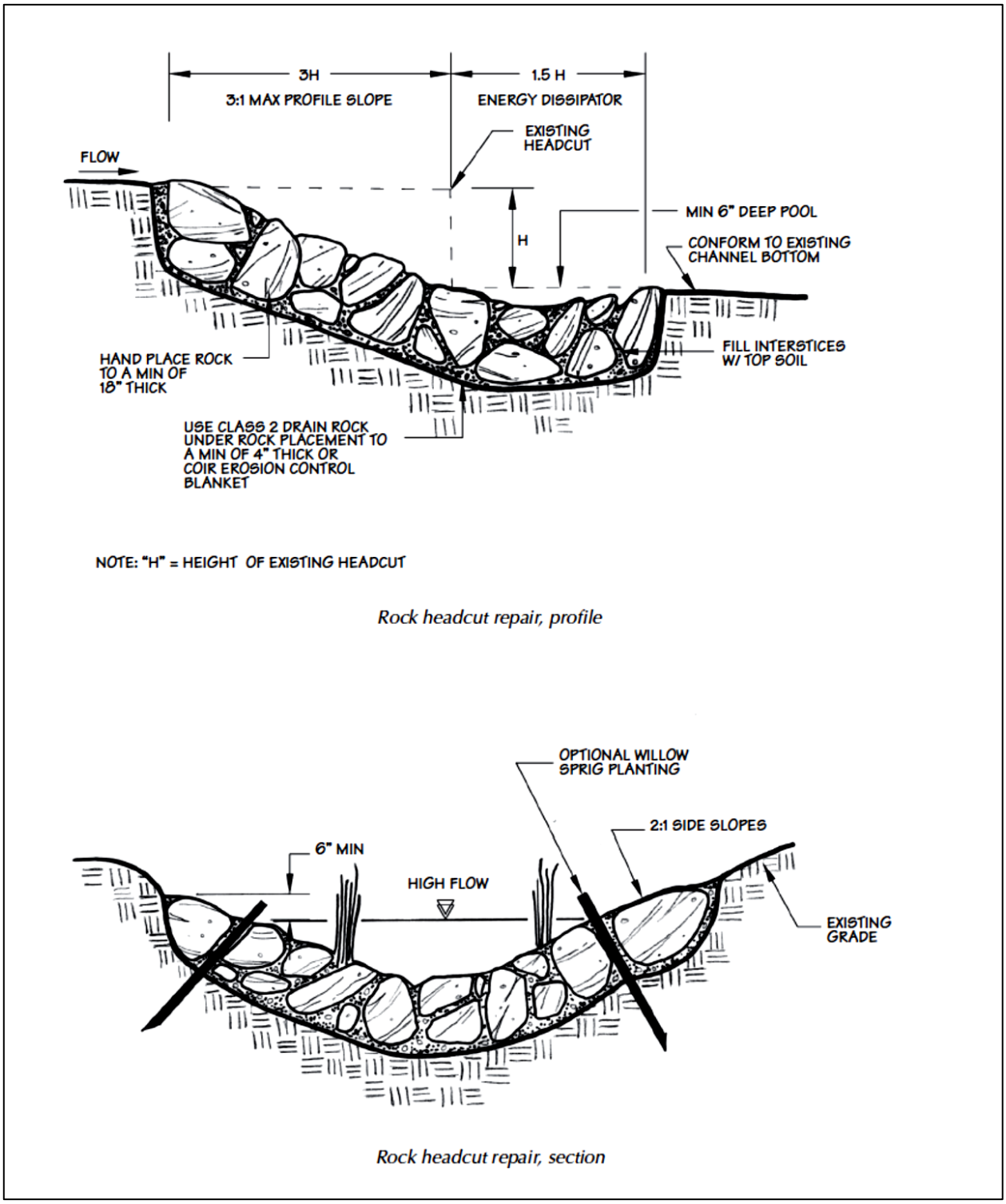
Coir log revetment with live willow staking

Coir logs are manufactured cylinders of tough coconut fiber that come in different lengths and diameters. They are commonly used at construction sites to slow runoff and trap sediment. Coir logs can be stacked and staked to provide protection in low-flow channels at the toe of banks or on gentle slopes. Willow sprigs make excellent stakes in sunny sites. Make sure that the logs are very securely staked to withstand high velocities. If they get loose in the stream, they can damage wildlife and divert flow.

The next group of techniques may be built by the layperson under the specified conditions. However, we recommend that you consult with National Resource Conservation Service (NRCS), your local Resource Conservation District (RCD), County staff trained in biotechnical repairs, or a restoration consultant before you design and install these repairs. Because these structures will be exposed to high velocities and strong erosive forces, improper placement or inadequate keying into the bank can easily create worse problems than you started out to fix. Unless fill, such as rock, is added below the ordinary high water mark (active channel or bankfull depth), permits from the Army Corps of Engineers are not necessary. However, a permit from the California Department of Fish and Game (CDFG) is needed when working from the bed of the stream through the riparian habitat along the streambank. Other permits may also be required, especially if threatened or endangered species are present (Chapter 12).

Source: Marin RCD, 2007

Figure 2-10: Example Soil Bioengineering Techniques (continued)



Source: Marin RCD, 2007

BMP-13 Installation of single-post culvert inlet trash racks

A single metal post would be installed in channel upstream of a culverted stream crossing to help keep the culvert inlet from becoming plugged. This BMP (Figure 2-11) would be installed at all culverted crossings that drain forested areas, as indicated in the performance standards for sediment discharge from roads, which are conditions of the General Permit. Trash racks require regular maintenance (e.g., removal of debris and deposited sediment) during storm periods to maintain proper function. Trash rack installation is accomplished:

- Using hand tools to drive a metal post (e.g., steel fence posts, galvanized pipe, etc.) into a streambed upstream of the culvert at a distance approximately equal to the culvert diameter.

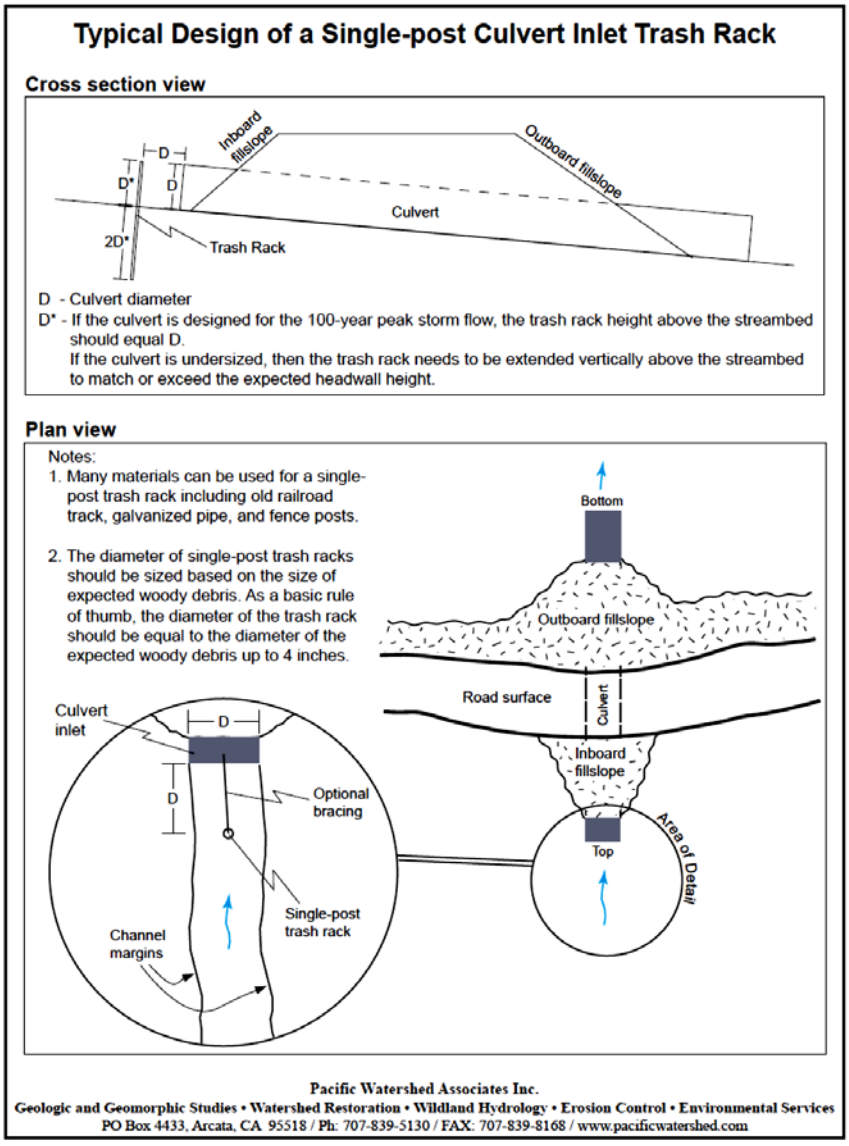


Figure 2-11: Schematic of single-post trash rack including design (Source: Pacific Watershed Associates, unpublished data, as cited in Napa RCD, 2014).

BMP-14 Construction of water bars (only appropriate for road closed in the wet season)

Water bars are low-relief mounds (typically compacted soil, but in some cases constructed from treated wood or other materials) that are installed at a 45 to 60 degree angle to the road alignment. This BMP works by dispersing runoff from the road before it becomes sufficiently concentrated to cause erosion. Note that water bars only are appropriate for use on roads that are closed during the wet season because water bars will erode/deform when wet under the weight of regular vehicle traffic (Weaver et al., 2014, pp. 63-64). On such roads, this BMP may be used to reduce hydrologic connectivity of a road segment. Water bar construction involves:

- Rough grading to construct small closely spaced mounds (water bars), with spacing being a function of the road slope
- Final grading and compaction

BMP-15 Removal of unstable road fill and/or unstable side-cast materials

BMP-15 may be implemented where the fill slope and/or side-cast materials show evidence of instability and the potential for a landslide failure (e.g., tension cracks). Removal of unstable fill and/or side-cast materials could involve use of heavy-equipment (e.g., an excavator, bulldozer, and/or dump trucks) to excavate, grade, compact work areas. Following earth-moving, the disturbed area would be seeded and covered with straw, mulch, and/or other materials to control surface erosion and promote re-vegetation.

- Rough grading and cut to remove unstable materials and reshape to a more gentle and stable slope
- Final grading/compaction
- Apply native grass seeds, mulch or rice straw, jute or coir netting (as needed) to secure straw or mulch on steep slopes, and/or erosion control blankets as needed to re-vegetate the site.

BMP-16 Road surface outsloping and construction of rolling dips

Consistent with the performance standards for discharge under the General Permit, ≤ 25 percent of the length of unpaved roads within a Vineyard Property may be hydrologically connected. To attain this performance standard, on a segment of existing unpaved road that is in-sloped and/or crowned and drains into inboard ditches, the road surface would be re-graded such that that water drained across the road (typically at a slope of 3-to-5 percent in a direction perpendicular to the road alignment) and in the down-slope direction (e.g., out-sloped). Out-sloped roads (Figure 2-12) disperse and discharge runoff along the whole outside edge of the road. In concert with outsloping, rolling dips need to be constructed on climbing or falling segments of the road to provide proper drainage, with closer spacing between the rolling dips on steeper road segments. “Rolling dips are smooth, angled depressions constructed in the road bed” (Weaver et al., 2014).

Photo credit: Weaver et al., 2014

Figure 2-12: Out-sloped road with rolling dip in view below the vehicle. Note: on an out-sloped road, the road surface runoff is directed across the road perpendicular to alignment in the down-slope direction. The cross-slope of the road (pathway of the drainage) within the out-sloped sections of the road is gentle, 3-to-8 percent with the value increasing with the road steepness.

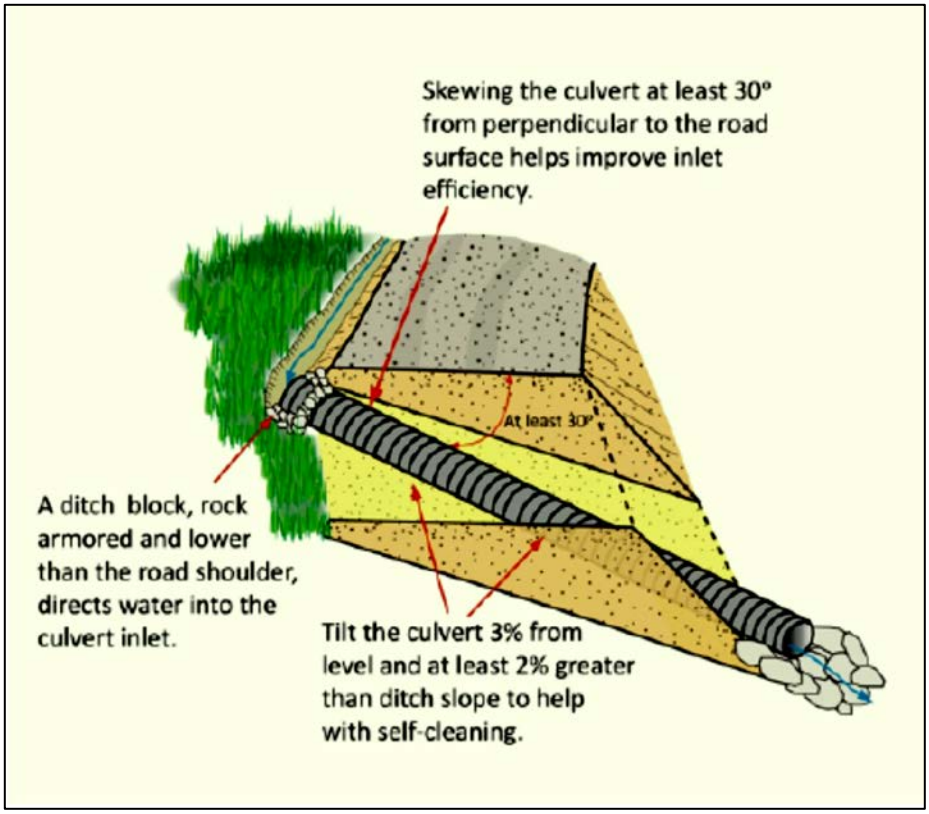
BMP-16, out-sloping and rolling dip construction involves the following activities:

- Rough grading, final grading, and compaction. This involves shallow and/or partial excavation of an existing road prism (depth of excavation would vary from a few inches to about 1.5 feet) to out-slope the road, and/or to construct rolling dips. This BMP may be employed on any existing unpaved road segment;
- Road surface treatment/protection is accomplished via soil compaction on most roads, and/or by placement and compaction of a 6-to-10 inch layer of durable, hard angular gravel that is well graded.

BMP-17 Installation of ditch relief culvert

BMP-17, ditch relief culverts, would be installed and constructed within an existing or new road segment that is drained by an inboard ditch (e.g., within a road segment where out-sloping is not safe or feasible). The ditch relief culvert (Figure 2-13) works by diverting road runoff before it becomes concentrated, as needed to control ditch and/or road crossing erosion. Construction of a ditch relief culvert involves the following:

- Excavation across road bed to lay down culvert pipe at a 30-degree angle and 2-4 percent steeper slope than the approaching ditch grade
- Backfill road bed surface above the culvert pipe
- Compact backfill to depth of 1 foot or 1/3 of culvert diameter (whichever greater) over the top of the pipe
- Possible addition of rock riprap at the pipe outlet to stabilize



Source: Weaver et al., 2014

Figure 2-13: Schematic illustration of a typical ditch relief culvert. Note: The ditch relief culvert is installed at the base of the road fill.

BMP-18 Construction of a critical dip

A critical dip (Figure 2-14) is installed at a road crossing where there is the potential for diversion of a stream channel along the road if/when a crossing is overtopped. Diversion potential exists where a falling segment of road (one that slopes away from the crossing) is adjacent to a crossing. Stream channel diversions along roads create the potential for erosion of a large gullies or landslides, and significant sediment delivery to channels. A critical dip is excavated to create a dip in the road bed and act, in essence, like overflow structure or spillway of sufficient capacity to allow flood flows to be directed immediately back into its channel in the event of overtopping of the crossing during a large storm. Where the probability of a crossing being overtopped is high, the critical dip also may be armored with appropriately sized rip-rap. Critical dip construction typically involves the use of heavy equipment, which may include an excavator, bulldozer, and/or dump truck(s). This BMP could be installed on an existing or a new/storm-proofed road. Critical dip construction involves:

- Vegetation grubbing and removal (where a new storm-proofed road is constructed to replace a problem road)
- Rough grading, final grading, and compaction to excavate and construct the dip
- Installation of rip-rap as needed in the dip across the road and also along the downslope surface of the road fill to grade with the stream channel.

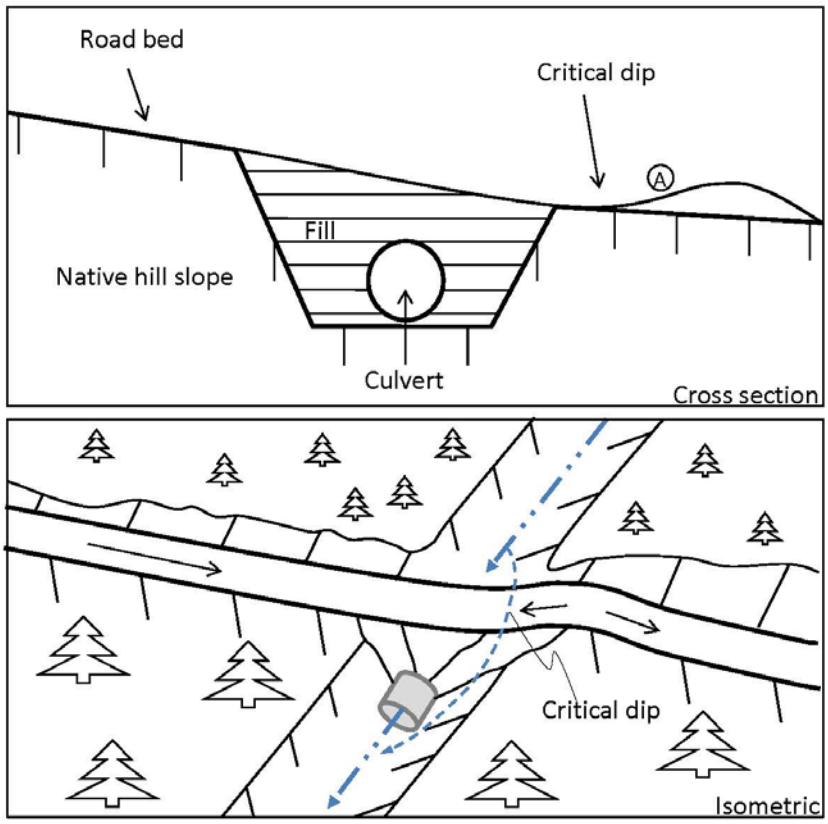


Figure 2-14: Schematic illustration of a critical dip (Source: Pacific Watershed Associates, unpublished data, as cited in Napa RCD, 2014).

BMP-19 Decommissioning and stabilizing a problem road segment

BMP used where an existing road segment generates very high rates of sediment delivery, is very expensive to maintain, and/or the road is no longer needed. Road decommissioning and stabilization (Figure 2-15) involves using heavy equipment to rip the road surface, excavators to remove crossings and unstable fill or side-cast and construct cross drains where needed, and dump trucks to haul away excavated materials.

- Rip road surface
- Excavate and remove road fill and side-cast where these materials are unstable
- Excavate and construct cross-drains
- Excavate and completely remove all stream crossings
- Apply native grass seeds, mulch or rice straw, jute or coir netting (as needed) to secure straw or mulch on steep slopes, and/or erosion control blankets on road surface and areas of excavation at former crossings and at constructed cross drains

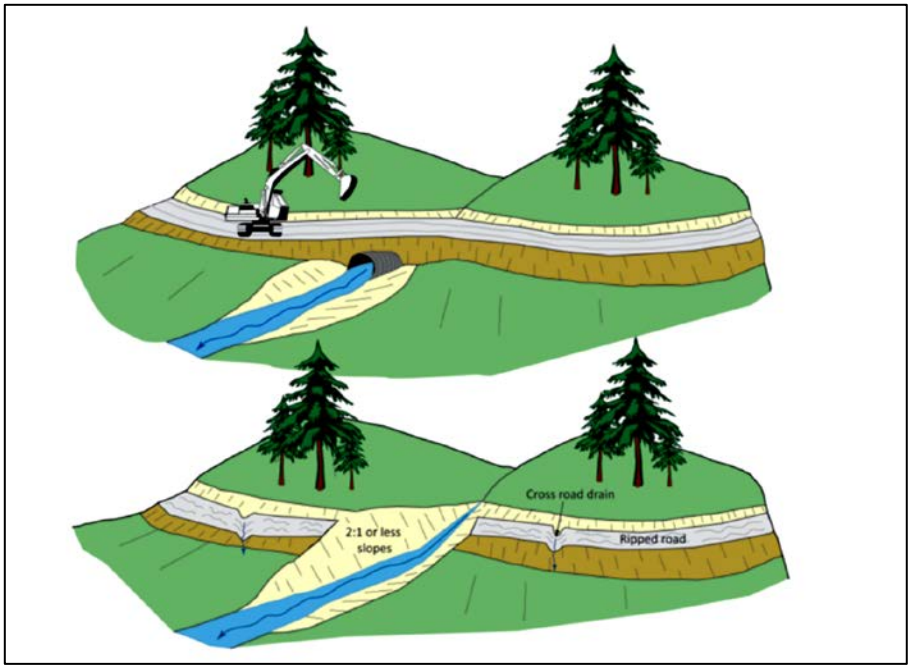


Figure 2-15: Schematic of road decommissioning and stabilization (Weaver et al., 2014).

BMP-20 Constructing a new storm-proofed road segment (to replace a problem road)

BMP-20 may occur where a problem road segment (e.g., the road crosses several landslides and/or is built on highly erosive soils, etc.) needs to be decommissioned and then relocated in order to maintain property access. Consistent with the performance standards for discharge under the General Permit, the new road would have to be storm-proofed. Characteristics of storm-proofed roads are listed in Table 2-2. New road construction would involve using heavy equipment (e.g., excavators, bulldozers, dump trucks) to grub and remove vegetation, excavate, fill, grade, and compact earth materials in order to construct the road prism, install road crossings over stream channels, and/or construct/install drainage structures including an inboard ditch and/or ditch relief culverts (in segments where it is unsafe or infeasible to out-slope the road). The running surface of the new storm-proofed road, if it is a year-round road, also would be surfaced with gravel and/or asphalt.

- Rough grading/vegetation removal
- Road grading
- Road surface treatment/protection via asphalt/gravel placement or soil compaction
- Drainage ditch or culvert construction

BMP-21 Plant tissue or soil sampling

Vineyard plant tissue sampling is performed to assess the health and/or vigor of grapevines. Typically, a representative sample of 60-to-80 grape leaves are collected, and the petioles (e.g., stalk connecting to the leaves) are sent to a laboratory for nutritional analysis.

Vineyard soil sampling typically is performed to identify problems related to chemical imbalances and/or to determine if there are extremes in mineral nutrient levels (Christiansen, 2002). Soil samples typically are collected in the winter with a small hand-held soil core over representative areas within the vineyard.

BMP-22 Calibration of agrichemical sprayers and protocols to avoid drift

These BMPs relate to the maintenance and use of agrochemical sprayers to avoid over application during spraying through regular calibration of sprayers (UC Davis Weed Science Program and UC Cooperative Extension, unpublished guidance) and/or to avoid discharge to waterways and/or riparian areas (e.g., only spraying during appropriate weather conditions, turning sprayers off when operating adjacent to riparian areas and/or during equipment turn-around, etc.). Most vineyard owners and/or managers within the project area already have implemented these BMPs. Therefore, the overall effect of this BMP relative to the CEQA baseline would be a modest reduction in pesticide discharges to waterways and/or riparian areas.

BMP-23 Integrated pest management

"Integrated pest management (IPM) is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to: human health; beneficial and non-target organisms; and the environment" (University of California, Statewide Integrated Pest Management Program, 2014). IPM is in widespread use at vineyards within the project area. The overall effect of IPM as compared to the baseline would be a modest decrease in pesticide use and/or discharge.

BMP-24 Construction of concrete pads and/or berms to contain chemical spills

This BMP involves ensuring that agrichemical mixing/handling occurs at a location where spills, should they occur, can be contained without discharging to surface waters and/or wells. Agrichemical mixing and/or handling should occur far away from waterways and wells, and ideally on an impervious concrete pad. Wellheads would be protected with berms to avoid potential discharge of chemicals into the well.

BMP-25 Safe pesticide storage

Pesticides need to be stored in a building or shed that has a foundation to contain spills, where there is good lighting and ventilation, and adequate insulation or other controls to maintain suitable temperature conditions for storage. At most vineyard properties proper pesticide storage facilities are in place. Where this is not the case, existing farm buildings would be modified to provide proper conditions for storage, and/or suitable new storage facilities would be constructed within the farming area.

BMP-26 Implementation of fertigation practices

Fertigation involves application of dissolved fertilizers with irrigation water. Within the project area, irrigation is applied via drip-irrigation systems, and fertilizer is injected through the irrigation system. As a result fertilizers are delivered efficiently to root systems of the grapevines. Application of this BMP in concert with plant tissue and/or soil sampling, and soil moisture monitoring (e.g., soil moisture probes) allows for targeted spatial and temporal application of fertilizer and irrigation water.

2.6. Intended Uses of this Draft EIR

In general, a CEQA document: a) is an informational document that informs a public agency's decision-makers and the public generally, of significant adverse environmental effects of a Project; b) identifies possible ways to avoid or minimize significant effects; and c) describes reasonable alternatives to the Project (CEQA Guidelines Section 15121). A public agency's decision-makers must consider the information in a CEQA document prior to making a decision on the project. Accordingly, this draft EIR is intended to:

- Provide the Water Board and the public with information on the environmental effects of the proposed project (i.e., General Permit), and
- Be used as a tool by the Water Board to facilitate decision-making on the proposed General Permit.

The Water Board's General Permit EIR is intended to provide the necessary information for various State and local agencies to issue approvals for the wide range of projects that may be implemented by the Dischargers to comply with the General Permit and the watershed performance goals in the Napa River and Sonoma Creek TMDL Implementation Plans. In some select cases, additional CEQA compliance may be needed by other State or local agencies for specific BMP projects that have unique or substantial impacts that require additional CEQA disclosure. In these cases, other agencies would use this EIR in their CEQA compliance. The overarching goal is for General Permit Dischargers to include various mitigation measures developed as part of this EIR process into their site-specific plans to ensure environmental protection.

In addition to the Water Board (Lead Agency), this draft EIR may be used by other agencies, including Responsible Agencies to determine the effects of the proposed action. (Pub. Res. Code §§ 21069 and 21070; Cal. Code Regs., tit. 14, § 15096.) The following is a list of the potential agencies that may utilize this document for subsequent approvals:

- California Department of Fish and Wildlife Lake and Streambed Alteration Agreements,
- Water Board Clean Water Act Section 401 certifications
- Sonoma County Department of Planning approvals
- Napa County Department of Planning approvals,
- Local Air Pollution Control District s and approvals (if required)
- California State Office of Historic Preservation, and
- California State Water Resources Control Board.

Federal agencies that may utilize this document for subsequent approvals include:

- The National Marine Fisheries Service; United States Fish and Wildlife Service; and the United States Army Corps of Engineers San Francisco District. Each Discharger would need to determine whether federal approvals are needed for their sediment compliance project.

References

Abbe, T.B. and D.R. Montgomery, 2003. Patterns and Processes of Woody Debris Accumulation in Queets River basin, Washington. Geomorphology 51: 81-107.

Blanco, H. and R. Lal, 2010. Principles of soil conservation and management. First soft cover printing. Springer: New York, New York.

Cafferata, P., T. Spittler, M. Wopat, G. Bundros, and S. Flanagan, 2004. Designing Watercourse Crossings for Passage of 100-Year Flood Flows, Wood, and Sediment. California Department of Forestry and Fire Protection: Sacramento, CA.

California Integrated Waste Management Board, 2002. Vineyards Benefit from Compost and Mulch. Publication #443-99-005, Integrated Waste Management Board: Sacramento, CA.

Christensen, L. P. 2002. Monitoring and Interpreting Vine Mineral Nutrition Status for Wine Grapes (PDF). Proceedings of the Central Coast Wine Grape Symposium, Salinas, CA.

Chin, A., S. Anderson, A. Collison, B.J. Ellis-Sugai, J.P. Haltiner, J.P. Hogervorst, G.M. Kondolf, L.S. O'Hirok, A.H. Purcell, A.L. Riley, and E. Wohl, 2009. Linking Theory and Practice in Restoration of Step-Pool Streams. Environmental Management 43: 645-661.

Cooper, M.L., K.M. Klonsky, and R.L. De Moura, 2012. Sample Costs to Establish and Vineyard and Produce Winegrapes (Cabernet Sauvignon), North Coast Region, Napa County. UC Cooperative Extension, Napa County: Napa, CA.

Cramer, M.L., 2012. Stream Habitat Restoration Guidelines. Co-Published by the Washington Departments of Fish and Wildlife, Natural Resources, Transportation and Ecology, Washington State Conservation and Recreation Office, Puget Sound Partnership, and the US Fish and Wildlife Service, Olympia, WA. Technique 7, Large Wood and Log Jams, and Appendix G, Anchoring and Placement of Large Wood.

Liu, X,, X. Zhang, and M. Zhang, 2008. Major Factors Influencing the Efficacy of Vegetated Buffers on Sediment Trapping. Journal of Environmental Quality (37): 1667-1674.

Marin Resource Conservation District, 2007. Groundwork, a Handbook for Small Scale Erosion Control in Coastal California. Second Edition. Marin County RCD: Point Reyes Station, CA.

Napa County Resource Conservation District, 2014. Unpublished presentation materials, Road Erosion Control Workshop, Typical Design of a Single-Post Culvert Inlet Trash Rack (Pacific Watershed Associates, unpublished data).

Napolitano, M., 2008. Unpublished Memo to File, Vineyard design/management and relationships to on-site surface erosion rates and off-site erosion via concentrated runoff. San Francisco Bay Regional Water Quality Control Board: Oakland, CA.

Sonoma County Agricultural Commissioner's Office, 2013. Best Management Practices for Agricultural Erosion and Sediment Control. County of Sonoma, Agricultural Commissioner's Office: Santa Rosa, CA.

Sonoma County RCD, Napa County RCD, Mendocino County RCD, Gold Ridge RCD, and USDA Natural Resources Conservation Service, 2015. LANDSMART for Vineyards, Farm Plan Template, Version 2.0, January 2015. Sonoma County RCD: Petaluma, CA.

UC Cooperative Extension, 1998. Cover Cropping in Vineyards, a Grower's Handbook. University of California, Division of Agriculture and Natural Resources, Publication 3338. University of California, Agriculture and Natural Resources: Oakland, CA.

UC Cooperative Extension, 2006. Vegetated Filter Strips for Nonpoint Source Pollution Control in Agriculture. ANR Publication 8195. University of California, Agriculture and Natural Resources: Oakland, CA.

UC Davis, Weed Science Program, and UC Cooperative Extension, Napa County, no date. Calibrating an ATV Sprayer for Broadcast Applications. Unpublished guidance.

University of California Statewide Integrated Pest Management Program, 2014. Definition of Integrated Pest Management. http://www.ipm.ucdavis.edu/GENERAL/ipmdefinition.html.

USDA Natural Resources Conservation Service, 2010a. Natural Resources Conservation Service, Conservation Practice Standard, Grassed Waterway, Code 412. April 2010.

USDA Natural Resources Conservation Service, 2010b. Natural Resources Conservation Service, Conservation Practice Standard, Diversion, Code 362. April 2010.

USDA Natural Resources Conservation Service, 2010a. Natural Resources Conservation Service, Conservation Practice Standard, Underground Outlet, Code 620. September 2010.

USDA Natural Resources Conservation Service, 2010c. Natural Resources Conservation Service, Conservation Practice Standard, Underground Outlet, Code 620.

USDA Soil Conservation Service, 1994. The Universal Soil Loss Equation (USLE), Special Applications for Napa County, California, May 1994.

USEPA, 2014. Division of Water, Best Management Practices, Dry Detention Basins. As accessed on 28 October 2015 at http://water.epa.gov/polwaste/npdes/swbmp/Dry-Detention-Ponds.cfm . US Environmental Protection Agency, Division of Water: Washington, D.C.

Water Board, 2009a. Napa River Sediment TMDL and Habitat Enhancement Plan, Staff Report.

Weaver, W., E. Weppner, D. Hagans, 2014. Handbook of Forest, Ranch, and Rural Roads, A Guide for Planning, Designing, Constructing, Reconstructing, Upgrading, Maintaining, and Closing Wildland Roads. Mendocino RCD: Ukiah, CA. http://mcrcd.org/wp-content/uploads/Handbook_for_Forest_Ranch&Rural_Roads.pdf

3. IMPACT ANALYSIS APPROACH

The EIR presents the Water Board's analysis of potential impacts on the physical environment that may result from adoption and implementation of the General Permit. Project impacts are related to the potential environmental consequences resulting from actions that Dischargers are expected to take to comply with the General Permit. The General Permit would also provide incentives for voluntary implementation of habitat enhancement actions in incised channel reaches.

As described in this chapter, the General Permit would require actions to control sediment discharges, storm runoff increases, to control nutrient and pesticide discharges, and to reduce water quality impacts from vineyard properties in the Napa River and Sonoma Creek watersheds. Such actions may include the implementation of management practices to reduce and control:

- surface erosion from vineyards
- unpaved road-related erosion
- stormwater runoff and peak flow attenuation
- gully and shallow landslide erosion
- nutrient and pesticide discharges to surface and groundwater.

The EIR also identifies potential mitigation that could feasibly be implemented to alleviate, minimize, or avoid any significant environmental impacts.

3.1. Scope of the Analysis

When taking a discretionary action, CEQA requires the Water Board to conduct an environmental analysis of the reasonably foreseeable means of compliance with that rule or regulation (CEQA Guidelines, § 15187, subd. (a).). The analysis is required to include reasonably foreseeable environmental impacts of the methods of compliance, reasonably foreseeable feasible mitigation measures relating to those impacts, and reasonably foreseeable alternative means of compliance that would avoid or eliminate potential significant impacts. The analysis should not engage in speculation, nor is the detail of a project-level analysis required.

CEQA Guidelines section 15131, subdivision (a) also provides direction, and states that:

"An EIR may trace a chain of cause and effect from a decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes."

(CEQA Guidelines, § 15131, subd. (a).). Consistent with CEQA Guidelines section 15131, subdivision (a) and section 15187, the EIR impact analysis focuses on physical changes and consequent environmental impacts that could result from reasonably foreseeable compliance methods.

Section 3.2 presents an economics overview and provides support for the conclusion that it is unlikely that a large number of vineyard operations would close due to economic considerations related to additional costs to comply with the General Permit. Therefore, the scope of the impact analysis does not include possible environmental impacts that could be caused by the closure of operations.

Methods for compliance are the implementation of best management practices (BMPs) undertaken by dischargers to satisfy the General Permit's requirements, including actions that protect surface water and groundwater quality. For purposes of the EIR, the most likely BMPs expected to be used to comply with the General Permit are based on current industry practices and are discussed in Chapter 2. The General Permit does not stipulate how a discharger must comply. Individual dischargers may choose to implement other methods based on site-specific considerations.

In many cases, future actions cannot be definitively predicted, and although CEQA allows forecasting, it discourages speculation. An agency must make a good faith effort to anticipate and assess significant environmental impacts. If after thorough investigation, a lead agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact.

Because the General Permit would apply to both existing vineyard properties as well as new vineyard properties operations that may enroll for coverage in the future, the EIR assesses both the impacts from an existing vineyard properties due to retrofits for compliance, as well as impacts that would occur from a new operation's compliance with the General Permit. This analysis is necessarily at a generalized level because it would be speculative for the Water Board to predict the actual choices for compliance at any specific location and estimate the magnitude of impacts for a site-specific vineyard property operation within the project area.

Although the EIR analyzes whether the General Permit might create new significant impacts at existing and new vineyard properties, the General Permit would not authorize, approve, permit, or in any way support the location, construction, or operation of a vineyard property.

3.2. Approach to Impacts and Mitigation Measures

The EIR evaluates potential adverse environmental effects of adoption and implementation of the General Permit for the resources discussed in Chapters 4 through 8. Each chapter includes a discussion of existing environmental settings, and regulatory requirements.

CEQA Guidelines section 15125, subdivision (a) states that the EIR must include a description of the physical environmental conditions as they exist at the time the notice of preparation was published. For purposes of the EIR's environmental analysis, existing conditions are characterized by available data at the time the NOP was released on July 7, 2014. Baseline of vineyard property operations is discussed in Sections 1.1 – 1.3.

3.3. Economic Considerations

Under CEQA, economic or social effects of the project shall not be treated as significant effects on the environment. (Cal. Code Regs., tit. 14, § 15131.). Only physical changes to the environment can be considered significant and there must be a chain of cause and effect from economic or social changes to physical changes. Commenters have stated that the costs are too high, but have not provided a chain of cause and effect to physical changes.

Interested parties have submitted comments with regards to the economic pressure the General Permit would place on them. Interested parties speculated that the costs of complying with the General Permit may be so high that a grower would be forced to sell their land or would be forced out of business resulting in conversion of prime farmland to other non-agricultural uses.

Potential costs to comply with the proposed General Permit would fall into four categories:

1) Costs to implement BMPs in the farming area;
2) Administrative costs (enrollment, farm plan preparation, reporting, and monitoring);
3) Costs to implement BMPs to attenuate storm runoff and control gully and/or channel erosion (only applicable at some hillslope vineyard properties); and
4) Costs to implement BMPs on unpaved roads.

The first cost category relates to achievement of performance standards for vineyard soil erosion, and pesticide and nutrient discharges. Since the performance standards aren't prescriptive, a wide variety of BMPs may be employed (see Section 2.3) within the context of site-specific resource and/or agricultural constraints (e.g., vineyard maturity, soil type, available water resources, etc.), and vineyard production objectives. In advance of General Permit adoption, throughout the project area at most vineyard properties, effective practices have been implemented to control vineyard soil erosion, pesticide discharges, and nutrient discharges. This suggests that these BMP costs are reasonable, already accounted for in existing business plans at most sites, and therefore should not be an economic burden to implement at the minority of vineyard properties that have not already done so.

The second category, administrative costs, would include: enrollment fees, coalition group fees, and/or monitoring and reporting fees, and the cost of developing a farm plan. Water Board staff estimate that the total for all of these administrative costs would average less than $300 per acre of planted grapes per year (Napolitano, 2016a)[27]. In 2014, the average gross for winegrapes grown in Napa County was approximately $16,500 per acre and approximately $9500 per acre in Sonoma County. Therefore, potential administrative costs in most locations would represent less than 3 percent of the gross revenue, suggesting these costs would not be a burden.

The third category is for implementation of BMPs to reduce storm runoff from hillslope vineyards and to control related gully and/or channel erosion. As many as 10-to-20 percent of all hillslope vineyard properties may need to implement additional storm runoff control measures (BMP-1 through BMP-5 and/or BMP-8 through BMP-10), and soil bioengineering projects to control gully and/or channel erosion (BMP-11 and/or BMP-12) (see Section 2.3 for BMP descriptions). Note that the performance standard for discharge of storm runoff control is predicated on BMP implementation being economically feasible. Therefore by definition this category of costs would not present a significant economic burden.

The fourth category of costs is for implementation of road erosion and runoff control BMPs that would have an average cost of about $23,000 per mile of road[28]. Although road BMP implementation would represent additional near-term costs at most vineyard properties, these costs could be spread out over a 10-year period (the timeframe under the General Permit for achieving the road performance standards), and the net result of the investment in road BMPs would be roads that over the long-term, in addition to meeting water quality standards, are much cheaper to operate and maintain.

[27] $300 per acre is the highest value for the estimated administrative costs that would be applicable to a very small vineyard. Economies of scale significantly reduce costs per acre to prepare a farm plan and/or to preparing monitoring and reporting submittals.

[28] In almost all cases, valley floor properties would not need to implemented additional road erosion and runoff control BMPs (because they typically discharge sediment at rates below the performance standard). These costs would apply primarily to hillslope properties. Attainment of performance standards for roads would reduce future sediment delivery by approximately 500 cubic yards per mile per 20-year period, at an average estimated cost of $40 cubic yard of sediment savings: $40/yd^3 x 500 yd^3 = $20,000. Road inventory costs are estimated at approximately $2500 per mile. Total estimated cost is approximately $23,000. (Birmingham, 2016, personal communication)

Considering all of the above cost categories together, Water Board staff concludes that the overall cost of complying with the proposed General Permit would not indirectly contribute to a significant conversion of Prime farmland, Unique Farmland, and/or farmland of Statewide Significance to a non-agricultural use.

The EIR also notes that many Vineyard Properties are designated as agricultural lands through city and county ordinances. These ordinances typically protect agricultural resources and zoning. Additionally, many Vineyard Properties are in areas directly adjacent to a creek where the land would be not be able to be developed into other land uses because of the proximity to a waterbody.

Historic and future trends in vineyard development are depicted on Figure CON-4 (Napa County General Plan, 2009). Figure CON-4 shows that from 1958 to 2004, vineyard acres in the Napa Valley increased four-fold (approximately 10,000 to over 40,000 acres) and are predicted to increase by an additional 10,000 acres by 2030. The historic trends in growth, which have spanned several decades of cyclical market forces, challenges from vine pests, and increased operating costs associated with increased regulatory requirements, have not led to conversions of prime Farmland to non-agricultural uses or slowed agricultural growth. Napa Valley agricultural lands remain some of the most expensive in the nation (Napa Valley Register, April 2013), where one acre of vineyard can sell from $50,000 to $300,000, depending on its location.

While for some Dischargers the General Permit will result in increased costs of compliance, these economic effects do not translate into direct physical impacts on the environment. There are many cost-effective practices growers can implement to comply with the General Permit. Furthermore, successful implementation of BMPs could enhance agricultural productivity by strengthening erosion control methods already in place, resulting in a beneficial impact.

Considering all of the above, the EIR concludes that it is therefore highly unlikely that the General Permit would render a Vineyard Property economically nonviable.

3.4. Identifying Impact Significance

The analysis first determines the extent to which each of the resources could be affected by the General Permit. The analysis then applies a set of specific significance criteria (Thresholds of Significance) based on the CEQA Guidelines Appendix G Environmental Checklist Form. The “threshold of significance” for a given environmental effect is that level at which the lead agency finds effects of the project to be significant. The threshold can be defined as a quantitative or qualitative standard, or a set of criteria, pursuant to which the significance of a given environmental effect may be determined.

The range of potential impacts is as follows:

- No Impact – where the General Permit is not expected to create a physical adverse change in the environment or the project would result in only a beneficial impact.
- Less-Than-Significant Impact – where the General Permit would not create a substantial adverse change in the environment and for which no mitigation measures are required.
- Significant Impact – where the General Permit is anticipated to create a substantial adverse effect on the environment but feasible mitigation measures are available to reduce it to a less-than-significant level.

- Significant and Unavoidable Impact – where the General Permit is expected to create a substantial adverse effect on the environment and for which there are no feasible mitigation measures available to reduce it to a less-than-significant level.

Because the General Permit would apply to both existing vineyard properties as well as new vineyard properties that might in the future enroll for coverage under the General Permit, this EIR also assesses the impacts that would occur from a new operation's compliance with the General Permit.

3.5. Impacts Determined to be Less Than Significant

On July 7, 2014, The Water Board transmitted a Notice of Preparation, which included an attached Initial Study, to public agencies and persons with potential interest in the project (Appendix C). The Initial Study identified impacts that were determined to be less than significant including all impacts to: Agriculture and Forestry Resources, Aesthetics, Geology and Soils, Hazards and Hazardous Materials, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Transportation/Traffic, and Utilities and Service Systems. In response to comments on the Notice of Preparation, Agriculture and Forestry Resources subsequently was added to the list of resource categories evaluated in this EIR.

3.6. Mitigation Measures

Where significant adverse impacts are identified for the General Permit, the EIR must "describe feasible measures which could minimize" those impacts to a less-than-significant level (CEQA Guidelines, § 15126.4). For each significant impact, mitigation measures are identified. In some cases, the EIR includes a list of alternative mitigation measures, which could reduce the impact to a less-than-significant level, or contribute to doing so. Where multiple measures are required to reduce an impact to a less-than-significant level, the discussion clearly identifies which combination or permutation of measures would be necessary to achieve the appropriate level of mitigation.

Where measures are available that can reduce the magnitude of a potential significant impact of the General Permit, but not to a less-than significant level, these are also identified. The EIR strives not to include measures that are clearly infeasible. Under CEQA, "feasible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors" (CEQA Guidelines, § 15364).

If, even with imposition of mitigation measures, the project will generate unavoidable significant effects, the Water Board can only approve the project if it makes a written statement of overriding considerations and finds that benefits of the project outweigh the occurrence of those unavoidable effects (CEQA Guidelines, §§15092,15093).

References

Birmingham, B., 2015. Personal communication to Mike Napolitano, Water Board, regarding typical costs for road-erosion control actions in the Napa River watershed.

Napolitano, M, 2016a. Unpublished estimates for administrative costs under the proposed General Permit. Water Board: Oakland, CA.

4. AGRICULTURE AND FORESTRY RESOURCES

On July 7, 2014, a Notice of Preparation and attached Initial Study were distributed to the public and public agencies to solicit comments on the scope and content of the EIR for the Project. The primary potential impacts of concern were anticipated to include, but not limited to the following categories:

- Air Quality
- Biological Resources
- Cultural Resources
- Greenhouse Gas Emissions
- Hydrology and Water Quality

In response to comments from the California Farm Bureau Federation (Farm Bureau), agriculture and forestry resources have been added to the list of primary impacts of concern to be addressed in the EIR. No significant impacts to agricultural resources are expected to occur as a result of actions taken in response to the General Permit, with supporting rationale as provided below.

The purpose of this section is to present an overview of agriculture and forestry resources within the Napa River and Sonoma Creek watersheds. In addition, this section presents: relevant laws and policies that provide for the protection of agriculture and forestry resources; and evaluates potential impacts to agriculture and forestry resources that may result from project implementation. Since the Project is specific to Vineyard Properties, the primary focus of this section will be on aspects of the environmental setting, and impacts that are relevant to Vineyard Properties.

4.1. Regional Setting

The Project area is defined by the 426 square-mile Napa River watershed and adjacent 166 square-mile Sonoma Creek watershed, located within the northern San Francisco Bay Area counties of Napa and Sonoma. These watersheds feature a substantial amount of agriculture and forestry resources. Land cover in the Napa River watershed, for instance, is 19 percent agricultural and 35 percent forested. Land cover in the remainder of the watershed is 23 percent grasslands and just eight percent developed (ABAG, 2000). Similarly, land cover in the Sonoma Creek watershed is 30 percent agricultural and 30 percent forested with 20 percent grassland and 15 percent developed. In both watersheds, vineyards comprise the largest and fastest growing portion of the agricultural land use (ABAG, 2000).

The Napa and Sonoma Valleys are two of the best places on earth to grow wine grapes. As a result, viticulture is the predominant form of agriculture in both watersheds. Vineyard properties constitute about 162,000 acres, or 40 percent of the total land area in the Napa River and Sonoma Creek watersheds (Appendix B, GIS Analysis). Vineyard properties include: a) 59,000 acres of planted wine grapes; b) farm avenues, buildings, and infrastructure; c) extensive networks of property-wide access roads (most of which are unpaved); and d) adjacent open-spaces under natural vegetation cover[29]. The 59,000 acres of planted wine grapes correspond to about 16 percent of the land area in these two watersheds. Based on GIS analysis, Water Board staff estimates that vineyard properties totaling

[29] In many cases, these adjacent open-spaces were/are managed for other uses including rural residential, livestock grazing, timber production, water supply, and/or recreation.

about 109,000 acres, and including as many as 54,000 acres of planted wine grapes, could be regulated under the proposed Water Board General Permit (Appendix A).

From 1982 to 2007, Napa County saw an increase in wine grape production, which resulted in a doubling in total crop value (Napa County, 2007). During that time, wine grape production accounted for the highest economic contribution to Napa County's agricultural economy. From 1992 to 2012, Napa County experienced a net increase of 2,463 acres of Important Farm Land, as defined by the California Department of Conservation (Department of Conservation, 1994 and 2012), and an increase of 12,052 acres planted in wine grapes (Napa County,1993 and 2013).

Between 1992 and 2002, Sonoma County's supply of agricultural land, while increasing in several categories, experienced a net decrease (Sonoma County, 2006). Between 1992 and 2002 the amount of Prime Farmland, Farmland of Statewide Importance and Unique Farmland increased (gain of 16,349 acres), while the amount of Farmland of Local Importance decreased (loss of 22,812 acres) for a net loss of 6,463 acres of Important Farmland. Part of this change is due to adjustments by the California Department of Conservation to boundaries and corrections made to soil unit identification throughout the county. The primary reason for the increase in the amount of farmland is due to vineyard additions. The loss of Grazing Land (21,258 acres between 1992 and 2002) was primarily due to a reclassification of lands. Neither the adjustments and corrections, nor the reclassification, was the result of farmland conversion to non-agricultural use during this period. As a result, it is likely that these data actually indicate a net increase in agricultural land (Sonoma County, 2006). The agriculture baseline is on a positive growth trend, not contracting in size. The General Permit will not diminish this trend. Furthermore, even in light of increased regulations over this period of time the county experienced an expansion in agricultural lands.

Although commercial timber operations are active in the northern part of Napa and Sonoma Counties, and forests make up the largest percentages of land cover in the Napa River and Sonoma Creek watersheds, there are no significant commercial timber operations in these watersheds. Timber harvesting within the watersheds is generally limited to salvage operations in conjunction with vineyard conversions of forested land. The California Department of Forestry and Fire Protection (CAL FIRE) Forest Practice Program oversees timber harvesting in Napa County and Sonoma County. The program adheres to the California Forest Practice Rules, Title 14, California Code of Regulations, Chapters 4, 4.5, and 10 (Napa County, 2007). As described in section 895.1 of the Rules, "commercial timber species" are all of the species listed in Group A and those in Group B (Table 1) that are found on lands where the species in Group A are now growing naturally or have grown historically in the recorded past for the Coast and Northern Forest Districts (Napa County, 2007).

Table 4-1: Commercial Timber Species	
Coast Forest District	
Group A	**Group B**
Coast Redwood (*Sequoia sempervirens*)	Tanoak (*Lithocarpus densiflorus*)
Incense Cedar (*Libocedrus decurrens*)	Golden Chinkapin (*Castanopsis chrysophylla*)
Douglas Fir (*Pseudotsuga menziesii*)	Red Alder (*Alnus rubra*)
Port Orford Cedar (*Chamaecyparis lawsoniana*)	Pepperwood (*Umbellularia californica*)
Grand Fir (*Abies grandis*)	White Alder (*Alnus rhombifolia*)
California Red Fir (*Abies magnifica*)	Oregon White Oak (*Quercus garryana*)
Western Hemlock (*Tsuga heterophylla*)	Eucalyptus (*Eucalyptus species*)
White Fir (*Abies concolor*)	California Black Oak (*Quercus kelloggii*)
Western Redcedar (*Thuja plicata*)	Pacific Madrone (*Arbutus menziesii*)
Jeffrey Pine (*Pinus jeffreyi*)	
Bishop Pine (*Pinus muricata*)	
Ponderosa Pine (*Pinus ponderosa*)	
Monterey Pine (*Pinus radiata*)	
Sugar Pine (*Pinus lambertiana*)	
Sitka Spruce (*Picea sitchensis*)	
Western White Pine (*Pinus monticola*)	
Northern Forest District	
Group A	**Group B**
Sugar Pine (*Pinus lambertiana*)	Knobcone Pine
Coast Redwood (*Sequoia sempervirens*)	Digger Pine
Ponderosa Pine (*Pinus ponderosa*)	California Black Oak (*Quercus kelloggii*)
Jeffrey Pine (*Pinus jeffreyi*)	Oregon White Oak (*Quercus garryana*)
Western White Pine (*Pinus monticola*)	Tanoak (*Lithocarpus densiflorus*)
Lodgepole Pine (*Pinus contorta*)	Mountain Hemlock (*Tsuga mertensiana*)
White Fir (*Abies con*color)	Brewer Spruce (*Picea breweriana*)
California Red Fir (*Abies magnifica*)	Engleman Spruce (*Picea engemanii*)
Noble Fir (*Abies procera*)	Sierra Redwood (*Sequoiadendron gigantium*)
Douglas Fir (*Pseudotsuga menziesii*)	Golden Chinkapin (*Castanopsis chrysophylla*)
Incense Cedar (*Libocedrus decurrens*)	Foxtail Pine (*Pinus balfouriana*)
Port Orford Cedar (*Chamaecyparis lawsoniana*)	White Alder (*Alnus rhom*bifolia)
	Monterey Pine (*Pinus radiata*)
	Pacific Madrone (*Arbutus menziesii*)
	Western Juniper (*Juniperus occidentallis*)
	California Laurel (*Umbellularia californica*)

Source: Napa County 2007

4.2. Regulatory Setting

4.2.1. Federal Regulations

Farmland Protection Policy Act (7 United States Code [USC] Section 4201)

The Farmland Protection Policy Act (FPPA) was established to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. It also directs federal programs to be compatible with State and local policies for the protection of farmland. Under the FPPA, the term "farmland" includes Prime Farmland, Unique Farmland, and Farmland of Statewide or Local Importance. Farmland does not have to be currently used as cropland to be subject to FPPA requirements. It can be forest land, pasture land, or other land, but not urban and built-up land or water. FPPA assures that, to the extent possible, federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland.

In 1981, Congress passed the Agriculture and Food Act (Public Law 97-98), which contained the FPPA, Subtitle I of Title XV, Sections 1539–1549. The final rules and regulations were published in the Federal Register on June 17, 1994. Federal agencies are required to develop and review their policies and procedures related to implementing the FPPA every two years.

The FPPA does not authorize the federal government to regulate the use of private or non-federal land or in any way affect the rights of property owners. Projects are subject to FPPA requirements if they irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or rely on assistance from a federal agency.

4.2.2. State Regulations

California Department of Conservation (DOC), Division of Land Resource Protection

The California Department of Conservation (DOC) applies the Natural Resources Conservation Service soil classifications to identify agricultural lands. These agricultural designations are used to plan present and future uses for California's agricultural land resources. The DOC uses a minimum mapping unit area of ten acres, and parcels that are less than ten acres are incorporated into adjacent land use classifications.

The list below includes all farmland categories mapped by the DOC. (Figures 4-1 and 4-2), showing Farmland Mapping and Monitoring Program (FMMP) Categories within the Napa River and Sonoma Creek watersheds.

- **Prime Farmland**. Land that has the ideal combination of physical and chemical features. This land has the soil quality, growing season, and moisture content needed to sustain high yields and long-term agricultural production. The land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **Farmland of Statewide Importance.** Land that is similar to Prime Farmland but has minor shortcomings, such as steeper slopes or lower moisture content. The land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **Unique Farmland.** Land with lesser quality soils but still used for the production of the state's leading agricultural crops. This land is usually irrigated but may include land that supports non-

irrigated orchards or vineyards, as found in some climatic zones in California. The land must have been used for crop production at some time during the four years prior to the mapping date.

- **Farmland of Local Importance.** Land that is important to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land.** Land on which the existing vegetation is suited to grazing livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups with an interest in grazing. The minimum mapping unit for Grazing Land is 40 acres.
- **Urban and Built-Up Land.** Land that is developed with structures that have been built to a density of at least one unit to 1.5 acres, or about six structures to a ten-acre parcel. This land supports residential, industrial, commercial, institutional, and public administrative uses; railroad and other transportation yards; cemeteries, airports, golf courses, sanitary landfills, sewage treatment facilities, water control structures, and other developed uses.
- **Other Land.** Land that is not included in any other mapping category. Common examples include low-density rural developments; brush, timber, wetland, and riparian areas that are not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines and borrow pits, and water bodies smaller than 40 acres. Vacant and nonagricultural lands that are surrounded on all sides by urban development and greater than 40 acres are mapped as Other Land.

Figure 4-1: Farmland Mapping and Monitoring Program – 2012 Napa County Map

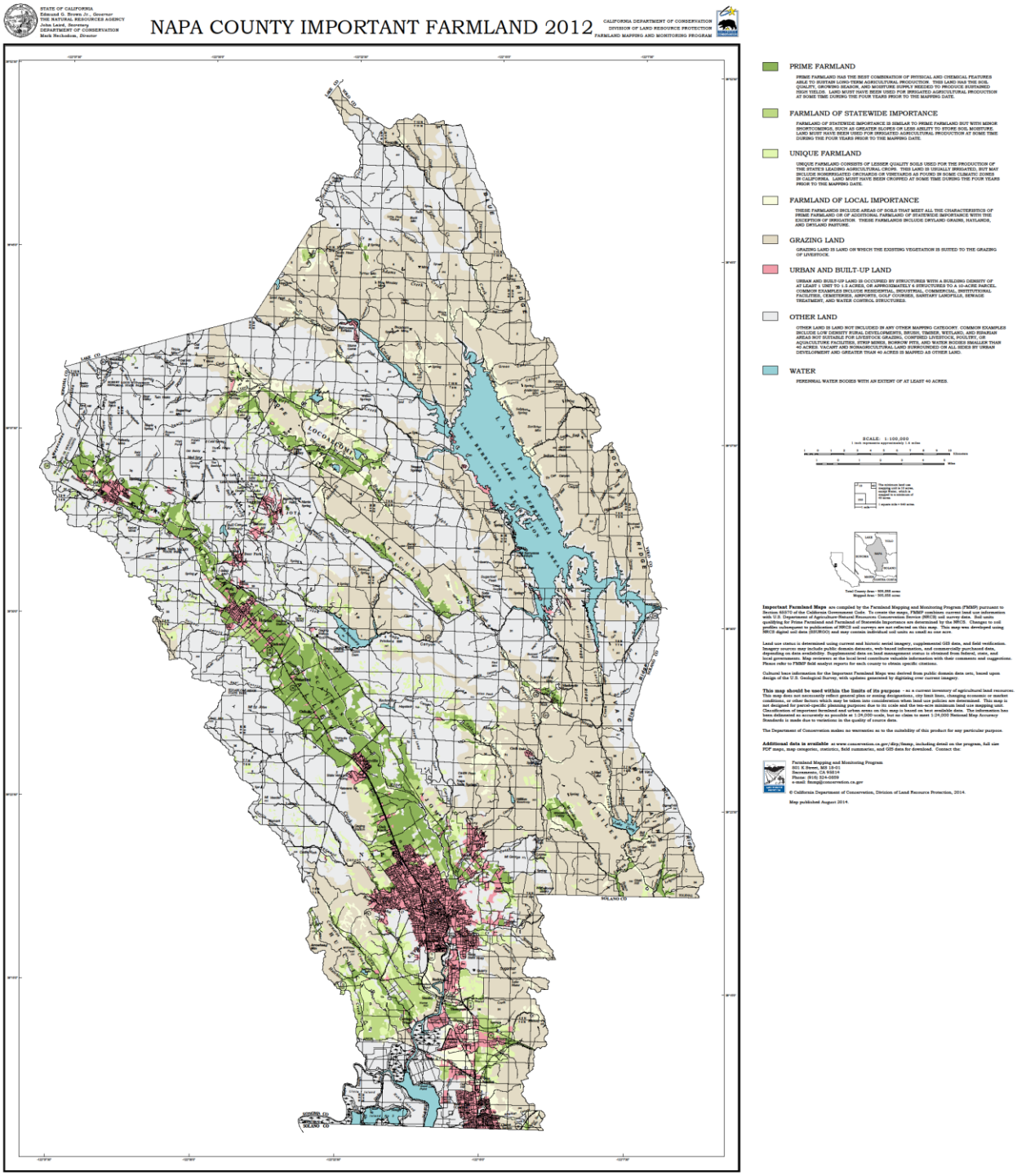
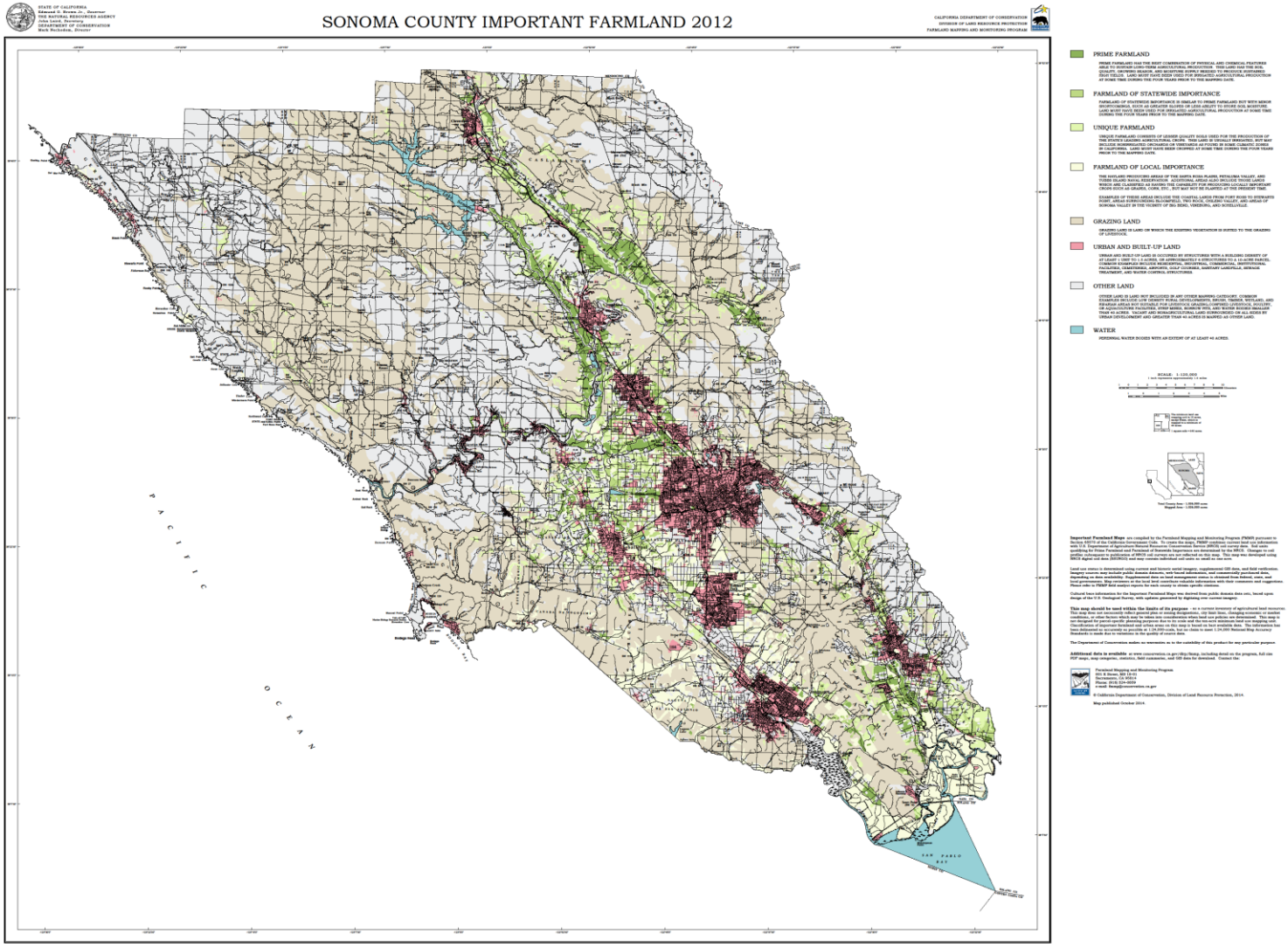
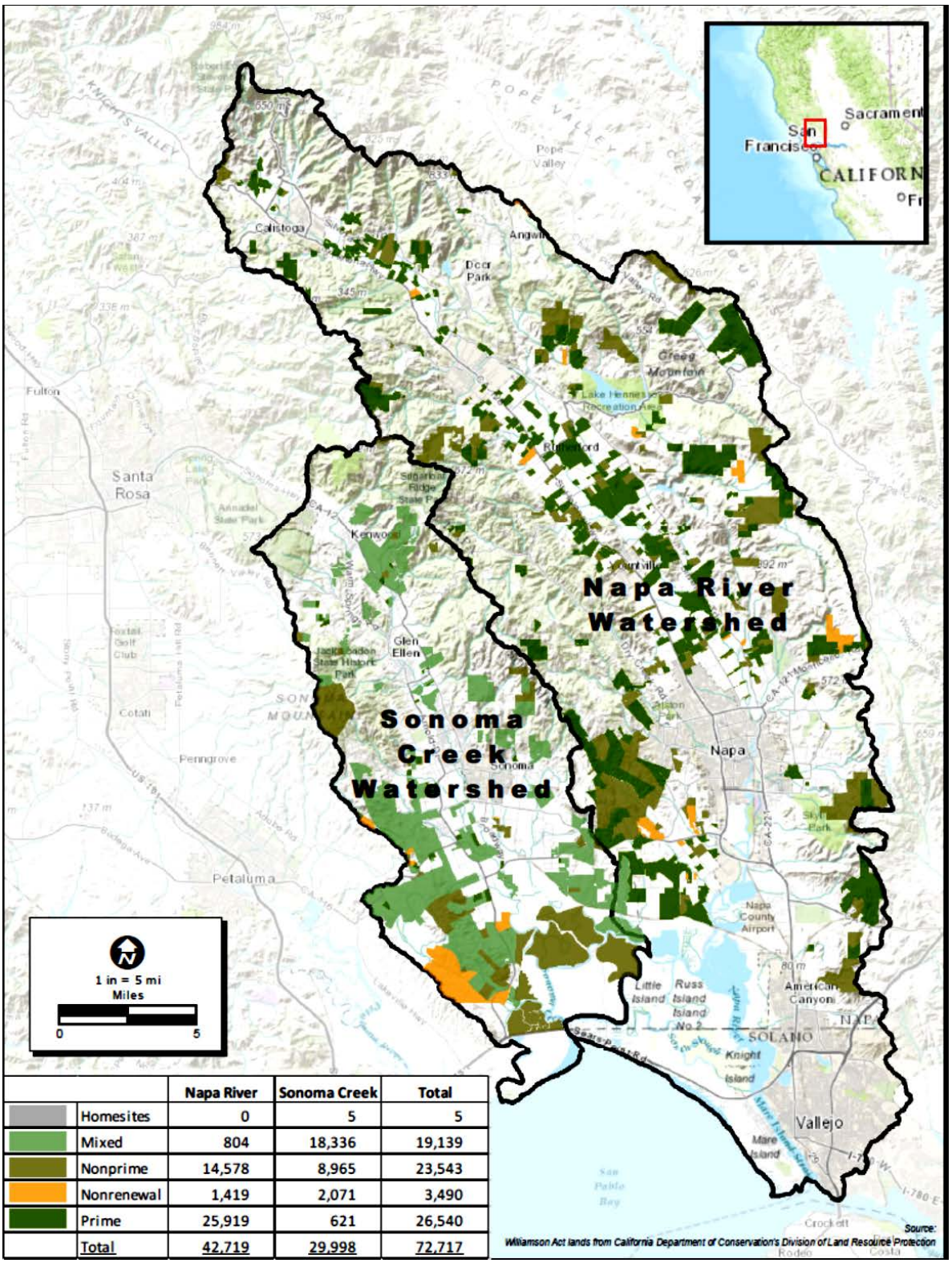


Figure 4-2: Farmland Mapping and Monitoring Program – 2012 Sonoma County Map





		Napa River	Sonoma Creek	Total
	Homesites	0	5	5
	Mixed	804	18,336	19,139
	Nonprime	14,578	8,965	23,543
	Nonrenewal	1,419	2,071	3,490
	Prime	25,919	621	26,540
	Total	42,719	29,998	72,717

Figure 4-3 Williamson Act Parcels

Figure 4-3 *Williamson Act Parcels* shows mapped parcels under Williamson Act contracts within the Napa River and Sonoma Creek watersheds.

Land Conservation Act (Williamson Act)

The California Land Conservation Act of 1965, typically referred to as the Williamson Act (Gov't Code §§ 51200–51297.4), enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use (Napa County, 2007). Landowners participating in these contracts receive property tax assessments which are much lower than normal because they are based upon farming and open space uses rather than full market value (Napa County, 2007).

Farmland Security Zone Act

The Farmland Security Zone Act, sometimes referred to as "super Williamson Act contracts," was passed in 1999 by California legislature to guarantee long-term preservation of farmland throughout the State. A land owner currently under a Williamson Act contract may apply for Farmland Security Zone status by entering into a contract with a county. The Farmland Security Zone classification renew automatically each year for a 20-year period. In return for an additional 35 percent reduction in the taxable value of the land and improvements (in addition to Williamson Act tax benefits), the owner of the property agrees not to convert the property to non-agricultural uses (Kern County, 2014).

Public Resources Code (PRC) Section 21060.1

PRC section 21060.1 uses the FMMP to classify agricultural land for the purposes of analyzing potential environmental impacts. Established in 1982, the FMMP was designed to assess the location, quality, and quantity of agricultural lands and analyze the conversion of such lands. The FMMP provides analysis pertaining to agricultural land use and land use changes throughout California (Kern County, 2014).

Forest Practices Rules

The California Department of Forestry and Fire Protection (CAL FIRE) implements the laws that regulate timber harvesting on privately-owned lands. These laws are contained in the Z'berg- Nejedly Forest Practice Act of 1973 which established a set of rules known as the Forest Practice Rules (FPRs) to be applied to forest management-related activities (i.e. timber harvests, timberland conversions, fire hazard removal, etc.) The FPRs are intended to preserve and protect fish, wildlife, forests and streams during timber harvesting activities. Under the Forest Practices Act, a Timber Harvesting Plan (THP) is submitted to CAL FIRE by the landowner summarizing the details of which species of trees are to be harvested, harvesting method, and the actions that will be taken to prevent adverse effects to the environment. If the landowner intends to convert timberland to non-timberland uses, such as a winery or vineyard, a Timberland Conversion Permit (TCP) is required in addition to the THP. CAL FIRE shall not approve a THP that fails to adopt feasible mitigation measures or alternatives from the range of measures in the FPRs, which would substantially reduce or avoid significant adverse environmental impacts resulting from timber harvest activities. THPs are required to be prepared by Registered Professional Foresters who are licensed to prepare these plans (Napa County 2007). For projects involving TCPs, CAL FIRE acts as lead agency under CEQA, and the county acts as a responsible agency.

Timberland Production Zones

In 1976, the California legislature adopted the Forest Taxation Reform Act. This act requires counties to zone parcels for the growing and harvesting of timber as Timberland Production Zones (TPZs). A TPZ

restricts the use of the land to the growing and harvesting of timber and compatible uses approved by the county in return for tax assessment benefits (Napa County 2007).

Timberland Productivity Act

In 1982, the California Legislature adopted the California Timberland Productivity Act (TPA). The TPA was enacted to protect compliant timber operations from being prohibited or restricted due to a conflict or potential conflict with surrounding land uses. The TPA directs counties to designate and zone lands or "timber production (TP) districts." Within a TP district, land uses are limited to the growing and harvesting of timber and compatible uses. However, timber harvest operations may also be conducted on timberlands outside of the TP zone in compliance with a THP that has been approved by CAL FIRE (Sonoma County, 2006).

4.2.3. Local Regulations

Napa County General Plan

The Napa County General Plan *has several goals and policies geared toward the preservation of agriculture and forestry resources within Napa County. Following is a list of goals and polices that may be applicable to the Project. A full description of all goals and polices pertaining to agriculture and forestry resources can be found in the* Agriculture Preservation and Land Use Element *and* Conservation Element *of the* Napa County General Plan *(Napa County, 2008)*.

Agricultural Preservation and Land Use Goals and Policies

Goal AG/LU-1: Preserve existing agricultural land uses and plan for agriculture and related activities as the primary land uses in Napa County.

Goal AG/LU-3: Support the economic viability of agriculture, including grape growing, winemaking, other types of agriculture, and supporting industries to ensure the preservation of agricultural lands.

Goal AG/LU-6: Create a stable and predictable regulatory environment that encourages investment by the private sector and balances the rights of individuals with those of the community and the needs of the environment.

Open Space Conservation Goals and Policies

Goal CON-1: The County of Napa will conserve resources by determining the most appropriate use of land, matching land uses and activities to the land's natural suitability, and minimizing conflicts with the natural environment and the agriculture it supports.

Policy CON-1: The County will preserve land for greenbelts, forest, recreation, flood control, adequate water supply, air quality improvement, habitat for fish, wildlife and wildlife movement, native vegetation, and natural beauty. The County will encourage management of these areas in ways that promote wildlife habitat renewal, diversification, and protection.

Policy CON-2: The County shall identify, improve, and conserve Napa County's agricultural land through the following measures:

a) Limit growth to minimize urban development on agricultural land and reduce conflict with the agricultural operations and economy.

b) Provide a permanent means of preservation of open space land for agricultural production. Require that existing significant vegetation be retained and incorporated into agricultural

projects to reduce soil erosion and to retain wildlife habitat. When retention is found to be infeasible, replanting of native or non-invasive vegetation shall be required.

c) Encourage the use of recycled water, particularly within groundwater deficient areas, for vegetation enhancement, frost protection, and irrigation to enhance agriculture and grazing.

d) Encourage inter-agency and inter-disciplinary cooperation, recognizing the agricultural commissioner's role as a liaison and the need to monitor and evaluate pesticide and herbicide programs over time and to potentially develop air quality, wildlife habitat, or other programs if needed to prevent environmental degradation.

e) Minimize pesticide and herbicide use and encourage research and use of integrated pest control methods such as cultural practices, biological control, host resistance, and other factors.

f) Encourage the use of Williamson Act contracts and use techniques to preserve agricultural lands.

g) Coordinate with municipalities' adopting and implementing policies, such as large lot zoning and urban limit lines, to limit urban expansion and encourage development of vacant land in areas already urbanized.

Policy CON-3: The County shall support sustainable agricultural practices, private stewardship programs and activities, and the formation and activities of volunteer stewardship groups in all three major watersheds, particularly agricultural appellation, river, and watershed-based organizations by:

a) Supporting grant applications,

b) Facilitating access to data, and

c) Working to achieve increased landowner participation in sustainable practices and stewardship groups as needed.

Policy CON-4: The County recognizes that preserving watershed open space is consistent with and critical to the support of agriculture and agricultural preservation goals.

Policy CON-6: The County shall impose conditions on discretionary projects which limit development in environmentally sensitive areas such as those adjacent to rivers or streamside areas and physically hazardous areas such as floodplains, steep slopes, high fire risk areas and geologically hazardous areas.

Policy CON-7: The County shall enact and enforce regulations which maintain or improve the current level of environmental quality found in Napa County. The County shall uniformly and fairly enforce codes and regulations and shall, with respect to enforcing regulations related to environmental quality, assign high priority to abatement of violations that may constitute actual or potential threats to public health or safety or that may cause significant environmental damage. Enforcement actions shall be designed to discourage significant damage and future violations.

Policy CON-8: The County will use financial and other incentives to encourage voluntary dedication in easement or fee title to the County of Napa or its designee (such as a local non-profit land trust) of significant habitat areas, as appropriate, to ensure long-term protection for fish and wildlife resources and protection of agricultural lands and open space.

Policy CON-9: The County shall pursue a variety of techniques and practices to achieve the County's Open Space Conservation policies, including:

a) Exclusive agriculture zoning or Transfer of Development Rights.

b) Acquisition through purchase, gift, grant, bequest, devise, lease, or otherwise, the fee or any lesser interest or right in real property.

c) Williamson Act or other incentives to maintain land in agricultural production or other open space uses.

d) Requirements for mitigation of development impacts, either on-site or at other locations in the county or through the payment of in-lieu fees in limited circumstances when impacts cannot be avoided.

Napa County Code of Ordinances

The following ordinances are taken from the Napa County Code of Ordinances and may be applicable to the Proposed Project (Napa County, 2014).

18.104.220 – Wineries located in open space areas – Coverage

The maximum coverage of new or expanded wineries shall be twenty-five percent of the existing parcel or fifteen acres, whichever is less. Coverage for the purposes of this measure shall be the aggregate paved or impervious ground surface areas of the production facility, storage areas (except caves), offices, laboratories, kitchens, tasting rooms, paved areas and access roads to public or private roads or rights-of-way and aboveground sewage disposal systems.

Notwithstanding subsection (E)(2) of Section 18.08.040, the calculation of coverage for wineries shall not include farm management uses.

16.08.150 – Timberland conversion conditions

Any application for a permit to engage in timber operations which shows, by satisfactory evidence, that the timberlands to be cut are to be devoted to bona fide use as a vineyard, or other agricultural activities, may be approved for removal of substantially all trees, but shall otherwise comply with the forest practice rules. Conditions may be imposed on any timberland conversion permit requiring retention of such trees as may be reasonably necessary for protection of wildlife habitats, watersheds and aesthetic values, provided such conditions may not impose restrictions more stringent than forest practice rules.

Chapter 18.16 – AP Agricultural Preserve District

18.16.010 – Intent of classification

The AP district classification is intended to be applied in the fertile valley and foothill areas of Napa County in which agriculture is and should continue to be the predominant land use, where uses incompatible to agriculture should be precluded and where the development of urban-type uses would be detrimental to the continuance of agriculture and the maintenance of open space which are economic and aesthetic attributes and assets of the county.

Chapter 18.20 – AW Agricultural Watershed District

18.16.010 – Intent of classification

The AW district classification is intended to be applied in the fertile valley and foothill areas of Napa County in which agriculture is and should continue to be the predominant land use, where uses incompatible to agriculture should be precluded and where the development of urban-type uses would be detrimental to the continuance of agriculture and the maintenance of open space which are economic and aesthetic attributes and assets of the county.

Chapter 18.102 - :PS Agricultural Produce Stand Combination District

18.102.010 - Intent of classification

The :PS combination district classification is intended to be applied in Agricultural Watershed districts where the sale of agricultural produce, fruits, vegetables, and Christmas trees, grown on or off premises, and items related thereto, as well as the recreational and educational use by children of animals, such as children's pony rides and petting zoos, occurs. Only lands that have been historically used for such purposes are eligible for the :PS combination district classification.

Napa County Code Chapter 2.94 – Right to Farm Ordinance

2.94.010 – Definitions

Unless the context otherwise requires, the following definitions govern the construction of this chapter:

"Adjacent land" means land located within one mile of the exterior boundaries of a parcel that qualifies as agricultural land.

"Agriculture" shall have the same meaning as "agriculture" as defined in Section 18.08.040 of this code.

"Agricultural land" means real property located within the boundaries of Napa County which falls into one or more of the following categories:

1. Is designated on the county general plan as agricultural resource (AR), agriculture, watershed and open space (AWOS), or rural residential (RR) and is included in a zoning district that is primarily or substantially devoted to agricultural uses including, but not limited to, the following zoning districts: agricultural preserve (AP), agricultural watershed (AW), residential country (RC), timber preserve (TP);
2. Is included in an overlay zoning district that is devoted primarily to agriculture;
3. Is designated in the general plan for an urban use but has been zoned AW or AP as an interim zone to maximize the economic use of the land for agricultural purposes while retaining the land in large parcel sizes pending eventual permanent development for urban use;
4. While not presently zoned or designated on the general plan for primarily agricultural use, the land contains an existing agricultural operation of a type that would be obvious to an uninformed observer after a physical inspection of the property, and that operation began at a time when such use was lawful.

"Agricultural operation" means all operations necessary to conduct agriculture as defined in Section 18.08.040 of this code and shall include, but not be limited to, preparation, tillage, and maintenance of the soil or other growing medium, the production, irrigation, frost protection, cultivation, growing, raising, breeding, harvesting, or processing of any living organism having value as an agricultural commodity or product, and any commercial practices performed incident to or in conjunction with such operations on the site where the agricultural product is being produced, including preparation for market, delivery to storage or to market, or to carriers for transportation to market.

"Transfer" means and includes, but is not limited to, the following: sale, exchange, installment, land sale contract, lease with option to purchase, any other option to purchase, or ground lease coupled with improvements, or residential stock cooperative improved with dwelling units.

2.94.020 – Right to Farm Conditions

No existing or future agricultural activity, operation or facility, or any of its appurtenances, conducted or maintained for commercial purposes in a manner consistent with proper and accepted customs and standards, as established and followed by similar agricultural operations in the same locality, shall be or become a nuisance, public or private, due to any changed condition in or about the county, after the same has been in operation for more than three years if it was not a nuisance at the time it began. Provided, however, that such agricultural operations must comply with all provisions of this code and further provided that the provisions of this section shall not apply whenever a nuisance results from the negligent or improper operation of any agricultural operation.

Sonoma County General Plan

The Open Space and Conservation Element of the *Sonoma County General Plan 2020* have several goals, objectives and policies to promote conservation and preservation of agriculture and forestry resources within Sonoma County. Following is a list of goals, objectives and policies that may be applicable to the Proposed Project. A full description of all goals and objectives pertaining to agriculture and forestry resources can be found in *Open Space and Conservation Element Sonoma County General Plan* (Sonoma County, 2010).

GOAL OSRC-10: Encourage the conservation of soil resources to protect their long term productivity and economic value.

GOAL OSRC-11: Promote and encourage soil conservation and management practices that maintain the productivity of soil resources.

Objective OSRC-11.1: Ensure that permitted uses are compatible with reducing potential damage due to soil erosion.

Objective OSRC-11.2: Establish ways to prevent soil erosion and restore areas damaged by erosion.

The following policies shall be used to achieve these objectives:

Policy OSRC-11a: Design discretionary projects so that structures and roads are not located on slopes of 30 percent or greater. This requirement is not intended to make any existing parcel unbuildable if Health and Building requirements can be met.

Policy OSRC-11b: Include erosion control measures for any discretionary project involving construction or grading near waterways or on lands with slopes over 10 percent.

Policy OSRC-11c: Encourage agricultural land owners to work closely with the N.R.C.S. and local Resource Conservation Districts to reduce soil erosion and to encourage soil restoration.

Policy OSRC-11d: Require a soil conservation program to reduce soil erosion impacts for discretionary projects that could increase waterway or hillside erosion. Design improvements such as roads and driveways to retain natural vegetation and topography to the extent feasible.

Policy OSRC-11e: Retain natural vegetation and topography to the extent economically feasible for any discretionary project improvements near waterways or in areas with a high risk of erosion as noted in the Sonoma County Soil Survey.

Policy OSRC-11f: Prepare and submit to the Board of Supervisors an erosion and sediment control report.

Policy OSRC-11g: Continue to enforce the Uniform Building Code to reduce erosion and slope instability problems.

GOAL OSRC-12: Preserve, sustain and restore forestry resources for their economic, conservation, recreation, and open space values.

Objective OSRC-12.1: Identify and preserve areas with timber soils and commercial timber stands for timber production. Reduce incompatible uses and the conversion of timberlands to agriculture and other uses that effectively prevent future timber production in these areas.

Objective OSRC-12.2: Minimize the potential adverse impacts of timber harvesting on economic, conservation, recreation and open space values and restore harvested areas to production for a future yield.

Policy OSRC-12a: Apply the "Resources and Rural Development" category to designate all lands in a "Timberland Production Zone" and adjacent parcels with timber soils or commercial timber stands.

Policy OSRC-12b: Review all timber harvest plans for compatibility with General Plan policies and economic viability of the industry.

Policy OSRC-12c: Where applicable, comment on timber harvest plans in support of increased protection of Class III streams.

Policy OSRC-12d: Review timber harvest plans adjacent to designated Riparian Corridors and request that clear cutting not occur within streamside conservation areas. Where clear cutting is approved by the applicable State or Federal agency along designated Riparian Corridors, ensure that at least 50 percent of the overstory canopy and at least 50 percent of the understory vegetation be retained.

Policy OSRC-12e: Revise the districts of the Zoning Code that implement the Resources and Rural Development land use category to reduce the potential for conversion of timberland to non-timber uses.

Sonoma County Code of Ordinances

The following ordinances are taken from the Sonoma County Code of Ordinances and may be applicable to the Proposed Project (Sonoma County, 2014a).

Article 04 – LIA Land Intensive Agriculture District

Sec. 26-04-005 – Purpose

Purpose: to enhance and protect lands best suited for permanent agricultural use and capable of relatively high production per acre of land; and to implement the provisions of the land intensive agriculture land use category of the General Plan and the policies of the agricultural resources element.

Article 06 – LEA Land Extensive Agriculture District

Sec. 26-06-005 – Purpose

Purpose: To enhance and protect lands best suited for permanent agricultural use and capable of relatively low production per acre of land; and to implement the provisions of the Land Extensive Agriculture land use category of the General Plan and the policies of the Ag

Agricultural Resources Element.

Article 08 – DA Diverse Agriculture District

Sec. 26-08-005 – Purpose

Purpose: to enhance and protect those land areas where soil, climate and water conditions support farming but where small acreage intensive farming and part-time farming activities are predominant, but where farming may not be the principal occupation of the farmer; and to implement the provisions of the

diverse agriculture land use category of the General Plan and the policies of the Agricultural Resource Element.

Article 10 – RRD Resources and Rural Development

Sec. 26-10-005 – Purpose

Purpose: to implement the provisions of the resources and rural development land use category of the General Plan, namely to provide protection of lands needed for commercial timber production, geothermal production, aggregate resources production; lands needed for protection of watershed, fish and wildlife habitat, biotic resources, and for agricultural production activities that are not subject to all of the policies contained in the agricultural resources element of the General Plan. The resources and rural development district is also intended to allow very low density residential development and recreational and visitor-serving uses where compatible with resource use and available public services.

Article 14 – TP Timberland Production District

Sec. 26-14-005 – Purpose

Purpose: to provide for timberland zoning, a yield tax imposed at the time of harvest, and the conservation and protection of land capable of producing timber and forest products. The compatible uses specified in this section will be included in this zone and are consistent with the Forest Taxation Reform Act of 1976.

Ordinance NO. 5203: Right to Farm Ordinance

Article 11. Right to Farm, Sec. 30-20. Short Title.

This article shall be known and may be cited as the Sonoma County Right to Farm Ordinance or the Right to Farm Ordinance.

Sec. 30-21. Findings.

(a) It is the declared policy of this county to conserve, protect, enhance, and encourage agricultural operations on agricultural land within the unincorporated area of the county. Further, it is the intent of this county to provide its residents proper notification of the county's recognition and support, through this article, of the right to farm.

(b) Where non-agricultural land uses, particularly residential and commercial development, extend onto agricultural land or exist side by side, agricultural operations are frequently the subject of nuisance complaints. As a result, some agricultural operations are forced to cease or curtail their operations and many others are discouraged from making investments in improvements to their operations, all to the detriment of adjacent agricultural uses and the economic viability of the county's agricultural industry as a whole. It is the purpose and intent of this article to reduce the loss to the county of its agricultural resources by limiting the circumstances under which properly conducted agricultural operations on agricultural land may be considered a nuisance.

(c) It is the further purpose and intent of this article to promote a good-neighbor policy by requiring notification of owners, purchasers, residents, and users of property adjacent to or near agricultural operations on agricultural land of the inherent potential problems associated with being located near such operations, including, without limitation, noise, odors, fumes, dust, smoke, insects, operation of machinery during any time of day or night, storage and disposal of manure, and ground or aerial application of fertilizers, soil amendments, seeds, and pesticides. It is intended that, through mandatory disclosures, owners, purchasers, residents, and users will better understand the impact

of living or working near agricultural operations and be prepared to accept attendant conditions from properly conducted agricultural operations as a normal and necessary aspect of living in a county with a strong rural character and an active agricultural sector.

(d) It is the further purpose and intent of this article to carry out and advance the goals, objectives, policies, and implementation programs of the agricultural resources element of the general plan (Sonoma County 2014b).

Sec. 26C-260 – Permitted uses, subject to site development & erosion control standards

The following uses are permitted except within a sensitive area, riparian corridor, critical habitat area, or unique feature designated in the general plan or coastal plan in which case a use permit is required. All clearing of vegetation, grading, excavation, fill or construction in association with these uses shall conform to the site development and erosion control standards.

a) Resource Management Uses:

1) Geotechnical studies involving no grading or construction of new roads or pads.

2) Timber management including planting, raising, and harvesting of trees and logs for lumber or fuel woods subject to requirements of California Department of Forestry and Fire Protection.

3) Raising, grazing, maintaining and breeding of horses, cattle, sheep, goats and similar animals.

4) The outdoor growing and harvesting of plants, flowers, fruits, vegetables, shrubs, vines, trees, hay, grain and other similar food and fiber crops. Except as noted below, agricultural cultivation shall not be permitted in the following areas:

a. Within one hundred feet (100′) from the top of the bank in the "Russian River Riparian Corridor."

b. Within fifty feet (50′) from the top of the bank in designated "flatland riparian corridors."

c. Within twenty-five feet (25′) from the top of the bank on designated "upland riparian corridors."

Agricultural cultivation may be allowed in subsections a. through c. above upon approval of a management plan which includes appropriate mitigation for potential erosion, bank stabilization, and biotic impacts. This plan may be approved by the director of the permit and resource management department or by use permit pursuant to Section 26C-261(b)(8).

- The indoor growing and harvesting of shrubs, vines, trees, hay, grain and similar food and fiber crops provided that the greenhouse or similar structure for indoor growing is less than eight hundred (800) square feet.
- Incidental cleaning, grading, packing, polishing, sizing or similar preparation of crops which are grown on the site but not including agricultural processing.
- Temporary or seasonal sales and promotion, and incidental storage of crops or fuel woods which are grown on the site.
- Temporary or seasonal sales and promotion of livestock which have been raised on the site.
- Beekeeping.

- Other non-residential uses which in the opinion of the director of the permit and resource management department are of a similar and compatible nature to those uses listed in Section 26C-260

Sec. 11.02.040 – Applicability

a) Compliance required. The provisions of this chapter shall apply to all grading, drainage improvement, and vineyard and orchard site development occurring within the unincorporated area of the county, except for grading and drainage improvement for timber operations conducted under an approved timber harvesting plan or nonindustrial timber management plan. The permit requirements in this chapter shall apply to all grading, drainage improvement, and vineyard and orchard site development subject to the provisions of this chapter, unless exempted from permit requirements by section 11.04.020, 11.06.020, or 11.08.020. The standards in article 16 shall apply to all grading, drainage improvement, and vineyard and orchard site development subject to the provisions of this chapter, regardless of whether a permit is required by this chapter.

b) Liability. Nothing in this chapter, nor the issuance of a permit pursuant to this chapter, nor compliance with the provisions of this chapter or with any permit conditions, shall relieve any person from responsibility for damage to other persons or property, or impose any liability upon the county, its officers, agents, or employees, for damage to other persons or property.

c) Relationship to other laws. The provisions of this chapter are not intended to and shall not be construed or given effect in a manner that conflicts with state or federal law, or interferes with the achievement of state or federal regulatory objectives. The provisions of this chapter shall be interpreted to be supplementary to and compatible with state and federal enactments, and in furtherance of the public purposes those enactments express. Compliance with the provisions of this chapter, however, does not ensure compliance with state and federal requirements. Further, the provisions of this chapter are not intended to and shall not be construed or given effect in a manner that supersedes other provisions of this code. Where another provision of this code establishes a stricter requirement than a provision of this chapter, that stricter requirement shall prevail.

d) Other permits. Nothing in this chapter shall eliminate the need for any person undertaking any grading, drainage improvement, or vineyard or orchard site development to obtain any other permits, approvals, or authorizations required by this code or state or federal agencies.

Sec. 26C-327 – Minor timberland conversions

a) All minor timberland conversions shall require a zoning permit. Notice of the permit shall be mailed to all owners of real property as shown on the latest equalized assessment roll within three hundred feet (300′) of the subject property and posted in at least three (3) public places on or near the subject property at least ten (10) days prior to issuance of the permit. The notice shall include an explanation of the procedure to appeal issuance of the permit. In addition to such other plans and date as are necessary to determine compliance with this chapter, the application for the permit shall be accompanied by all of the following:

    1) A statement of the approximate number, size, species, age, and condition of the trees to be included in the minor timberland conversion, the amount of land clearing to be done, the equipment to be used, the method by which slash and debris are to be removed or disposed of, and a schedule of daily operations.

2) A copy of the notice of conversion exemption timber operations prepared by a registered professional forester and submitted to the California Department of Forestry and Fire Protection for the minor timberland conversion.

3) A statement by the owner of subject property consenting to the minor timberland conversion, certifying that the conversion is a one-time conversion to a non-timber growing use and that there is a bona fide intent to undertake and complete the conversion in conformance with the provisions of this chapter, and specifying what the new non-timber growing use will be after the conversion. The statement shall include evidence acceptable to the director of the permit and resource management department of the bona fide intent to undertake and complete the conversion. Such evidence shall include, but not be limited to, a valid use permit, building permit, or septic permit, approved grading plans for road construction, or an agricultural management plan or soil capability study demonstrating the feasibility of the new non-timber growing use.

4) Any other information the director of the permit and resource management department deems necessary to make a decision on the application. Such information may include, but shall not be limited to, drainage or erosion control details and biotic studies.

b) No zoning permit shall be issued for a minor timberland conversion unless it is determined that the conversion is a one-time conversion to a non-timber growing use and that there is a bona fide intent to undertake and complete the conversion in conformance with the provisions of this chapter. The determination of bona fide intent shall include consideration of the economic feasibility of the conversion, including, but not limited to, the suitability of soils, slope, aspect, quality and quantity of water, and micro-climate, and any other foreseeable factors necessary for successful conversion to the new non-timber growing use.

c) All minor timberland conversions shall be conducted in accordance with the provisions of Title 14, California Code of Regulations, Section 1104.1.

d) All minor timberland conversions shall be completed and the new non-timber growing use underway within two (2) years after the zoning permit is granted.

e) All minor timberland conversions shall minimize damage to soils, residual trees, young growth, and other vegetation, and prevent erosion and damage to neighboring properties.

f) No minor timberland conversion shall be conducted during the winter period unless it is carried out in accordance with Title 14, California Code of Regulations, Section 914.7, subsections (a) and (b).

g) No minor timberland conversion shall be conducted without a valid on-site copy of the zoning permit issued for the conversion.

h) No minor timberland conversion shall include the cutting or removal of any old growth redwood unless a registered professional forester certifies in writing that the tree poses a serious danger to persons or property.

4.3. Environmental Analysis

4.3.1. Impact Analysis Approach and Methods

The Project (General Permit) does not propose or require any person to take agricultural lands out of production. Rather, the General Permit would require Dischargers to comply with the Water Code and the Basin Plan by reducing discharges of sediment and storm runoff (including roads and points of direct discharge into streams), nutrients, and pesticides to receiving waters from Vineyard Properties, and by protecting and enhancing beneficial uses of waterways, including the protection of anadromous fish habitat, through the use of best management practices.

The Project would require controls on discharges from the Vineyard Properties. Compliance with the General Permit is expected to result in an increase in the implementation of commonly used, effective, and conventional agricultural BMPs to control and reduce erosion and other discharges from vineyard facilities and their associated networks of roads. Many of the Vineyard Properties in the Project area are already implementing a wide variety of erosion control BMPs in accordance with local regulations and with assistance provided by established technical assistance groups and voluntary conservation programs (see Sections 1.2 and 1.3).

The timing of implementation of BMPs would vary depending on the level of farm planning and water quality management completed at each property at the time the General Permit is adopted. As discussed in Section 1.3, significant numbers of landowners/operators have completed farm plan assessments and have already implemented effective BMPs that would comply with the General Permit. For those facilities, no additional BMPs would be needed beyond regular maintenance, effectiveness monitoring, and reporting. For landowners/operators who have not initiated farm planning at adoption, the General Permit would specify the timeline for completion of Farm Water Quality Plan and its implementation. It is expected that many of the BMPs constructed to achieve the requirements of the General Permit would be phased/constructed as part of normal, future site operations and improvements.

The following evaluation of agriculture and forestry impacts was prepared by considering applicable regulations and guidelines, and typical construction activities attributable to compliance with the General Permit. The assessment of potential impacts included review of documents, maps, and data; observation of existing vineyard operations; and consultation with persons currently involved with permitting or environmental documentation of vineyard operations.

4.3.2. Thresholds of Significance

According to Appendix G of the CEQA Guidelines, an impact to agriculture and forestry is considered significant if the Project would:

- 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 uses.
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- 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)); or

- Result in the loss of forest land or conversion of forest land to non-forest use.
- 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.

4.3.3. Impacts and Mitigation Measures

Impact 4.1: Compliance with the General Permit at Vineyard Properties would have a less than significant impact with regard to potential conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance Farmland to non-agricultural uses.

As described in detail in Section 2.5 and summarized in Table 2-3, a wide array of BMPs may be employed to comply with the performance standards for discharge that are conditions of the General Permit. Because the performance standards are not prescriptive, BMPs implemented at a given property can be selected within the context of site-specific constraints (e.g., vineyard maturity, soil type, available water resources, etc.), and vineyard production objectives. This flexibility and the widespread adoption throughout the project area in advance of adoption of the General Permit of a wide variety of cover crop types, integrated pest management practices, fertigation, wellhead protection measures, and composted mulch, support the conclusion that installation and maintenance of BMPs is compatible and in some cases beneficial with regard to agricultural production and therefore would not lead to conversion of Farmland to a non-agricultural use.

Other BMPs that may be implemented to comply with the General Permit relate to attenuation of storm runoff and/or gully and channel erosion controls, which would be implemented at perhaps 10-to-20 percent of all hillslope vineyards (for details, see evaluation of Impact 6.3), where hillslope vineyards discharge into unstable areas. In these cases, BMP implementation is predicated on technical and economic feasibility. Therefore, these compliance actions would not contribute directly or indirectly to potential for conversion of farmlands to other uses.

In addition to the above, the General Permit also specifies performance standards for sediment discharge from roads. Road BMPs would be constructed and maintained within the footprint of existing roads, or within the footprint of new roads where they are constructed, and therefore, would not have any direct effect on agricultural production or present any direct potential for conversion of farmlands to other uses.

<u>Potential for Farmland Conversion due to Compliance Costs</u>

Interested parties submitted comments expressing the concern that the costs of complying with the General Permit could be so high, that a grower would be forced to sell their land or would be forced out of business resulting in conversion of prime farmland to other non-agricultural uses. Commenters, however, did not provide additional information to suggest how this would occur.

As described in Section 3.3, the primary costs of compliance would be for road erosion and/or runoff control BMPs which typically only would be required at hillslope properties. Road erosion and/or runoff control BMPs although requiring additional near-term investment to upgrade the roads, yield long-term cost savings through reduced road maintenance and reconstruction costs. Other costs associated with compliance are expected to be insignificant. Therefore, the EIR concludes that the overall cost of complying with the proposed General Permit would not indirectly contribute to a significant conversion

of Prime farmland, Unique Farmland, and/or farmland of Statewide Significance to a non-agricultural use.

Local Government Planning Designations to Protect Farmlands

Many of these agricultural lands are in areas that are designated as agricultural lands through city and county ordinances. These ordinances typically protect agricultural resources and zoning. Additionally, many of these agricultural lands are in areas directly adjacent to a creek where the land would be not be able to be developed into other land uses because of the proximity to a waterbody. Even if the grower succumbs to economic pressure and is forced to sell their land or be forced out of business, the most likely possibility is that the land would be sold to another grower, resulting in a similar environmental impact.[30]

Trends in Vineyard Cultivation within the Project Area

Historic and future trends in vineyard development are depicted on Figure CON-4 (Napa County General Plan, 2008). Figure CON-4 shows that from 1958 to 2004 vineyard acres in the Napa Valley increased four-fold (approximately 10,000 to over 40,000 acres) and are predicted to increase by an additional 10,000 acres by 2030. The historic trends in growth, which have spanned several decades of cyclical market forces, challenges from vine pests, and increased operating costs associated with increased regulatory requirements, for example, have not led to conversions of prime Farmland to non-agricultural uses or slowed agricultural growth. Napa Valley agricultural lands remain some of the most expensive in the nation (Napa Valley Register, 2013), where one acre of vineyard can sell from $50,000 to $300,000, depending on its location.

Summary

It is therefore highly unlikely that the General Permit would render a vineyard operation economically unviable. In the unique circumstance where the cost of BMP installation may be too great or the loss of production of displaced planted areas would make the operation unprofitable, neither scenario would permanently or irretrievably convert the affected Farmland to non-agricultural use. The land would still be available for agricultural uses and therefore implementation of BMPs would be considered a less than significant impact. Furthermore, successful implementation of BMPs could enhance agricultural productivity by strengthening erosion control methods already in place, resulting in a beneficial impact.

While for some Dischargers, the General Permit will result in increased costs of compliance these economic effects do not translate into direct physical impacts on the environment. There are many cost-effective practices growers can implement to comply with the General Permit. Therefore, the economic effects, in light of historic trends, are considered less than significant.

Impact 4.2: Compliance with the General Permit at Vineyard Properties would not conflict with existing zoning for agricultural use, or a Williamson Act contract.

Implementation of the BMP as described above is designed to reduce erosion, sedimentation, and the discharge of pollutants from Vineyard Properties into the Napa River and Sonoma Creek watersheds and would not require a change in existing zoning for agricultural use, or a Williamson Act contract.

[30] 14 CCR Section 15382 - A social or economic change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.

Implementation of vineyard BMPs to comply with the General Permit would not conflict with existing agricultural zoning or any aspect of a Williamson Act contract because General Permit compliance will not materially change the primary agricultural activity on the parcels that benefit from Williamson Act contracts. As described above under discussion of Impact 4.1, compliance with the General Permit will not result in any amount of land permanently converted or committed to urban or other nonagricultural uses and were shown as agricultural land on Important Farmland Series maps maintained by the Department of Conservation (California Department of Conservation, 2004).

Impact 4.3: Compliance with the General Permit would not conflict with existing zoning for or cause rezoning of forest land, timberland, or timberland zoned timberland production.

In almost all cases, BMP implementation and maintenance would occur within the footprint of the vineyard and/or property-wide roads. Should a Discharger in order to comply with the General Permit, choose to locate and construct a sediment basin, wetland, and/or level spreader, or any other BMP in an adjacent, undeveloped area, if such action requires conversion of timberlands, no authority to discharge under the General Permit is allowed. In that situation, the discharger would either need to relocate the feature (e.g., basin, wetland, and/or level spreader) onto the vineyard proper to avoid the timberlands, or obtain coverage under individual waste discharge requirements from the Water Board. Therefore, implementation of BMPs in compliance with the General Permit would not require a change in existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production.

Impact 4.4: Implementation of BMPs would not result in the loss of forest land or conversion of forest land to non-forest use.

See the discussion above of Impacts 4.1and 4.3. The Proposed Project would not otherwise result in conversion of significant portions of farmland to non-agricultural use or conversion of forest land to non-forest use. No authority to discharge under the General Permit would be allowed if BMP selection and construction results in the loss of forest land or the conversion of forest land to non-forest use.

References

Association of Bay Area Governments, 2000. Bay Area spatial Information system (BASIS) files for existing land use in 2000 for the San Francisco Bay Area (GIS layer). Oakland, CA.

California Department of Conservation,1994. Farmland Mapping and Monitoring Program – Napa County 1992-1994 Land Use Conversion. Table 16.

California Department of Conservation,1994. Farmland Mapping and Monitoring Program – Sonoma County 1992-1994 Land Use Conversion. Table A-35.California Department of Conservation. (2012). Farmland Mapping and Monitoring Program – Napa County 2010-2012 Land Use Conversion. Table A-21.

California Department of Conservation, 2004. Guide to the Farmland Mapping and Monitoring Program, California Department of Conservation, Division of Land Resource Protection.

California Department of Conservation,2012. Farmland Mapping and Monitoring Program – Sonoma County 2010-2012 Land Use Conversion. Table A-40.

Environmental Protection Agency, 2015. Water: Best Management Practices. Available at http://water.epa.gov/polwaste/npdes/swbmp/Dry-Detention-Ponds.cfm.

Kern County, 2014. Draft Environmental Impact Report. ((SCH No. 2014051032), Volume 1 Chapters 1 through 11 Castor Solar Project (PP14163) Conditional Use Permit No. 5, Map 139-22.

Napa County Agricultural Commissioner,1993. Agricultural Crop Report for 1992.

Napa County,2007. Napa County General Plan Update, Draft Environmental Impact Report (SCH No. 2005102088)

Napa County, 2008. Napa County General Plan.

Napa County Agricultural Commissioner, 2013. Agricultural Crop Report for 2012.

Napa County, 2014. Code of Ordinances. Available at: https://www.municode.com/library/ca/napa_county/codes/code_of_ordinances .

Napa County General Plan, 2008. Department of Conservation, Development, and Planning, County of Napa, Napa, CA.

Napa Valley Register, 2013. Napa Valley remain most expensive in U.S.. Napa Valley Register, April 3, 2013.

Sonoma County Agricultural Commissioner,1993. 1992 Sonoma County Crop Report.

Sonoma County Agricultural Commissioner,2013. 2012 Sonoma County Crop Report,.

Sonoma County, 2006. Sonoma County General Plan 2020, Draft Environmental Impact Report (SCH No. 2003012020). page 4.8 – 4.

Sonoma County, 2010. Sonoma County General Plan 2020, Open Space and Conservation Element. Available at: http://www.sonoma-county.org/prmd/divpages/compplandiv.htm.

Sonoma County, 2014a. Municipal Code. Available at: http://codepublishing.com/ca/sonoma/. Sonoma County, 2014b. Appendix D, Right to Farm Ordinance. Ordinance NO. 5203. Available at: http://www.sonoma-county.org/prmd/docs/lcp/lcp_apdx_d.pdf.

Sonoma Ecology Center, 2004. Sonoma Creek Watershed Map 5 Land. Available at: http://knowledge.sonomacreek.net/node/71.

Water Board, 2012. Conditional Waiver of Waste Discharge Requirements for Discharges from Vineyard Properties in the Napa River and Sonoma Creek Watersheds. Initial Study and Proposed Mitigated Negative Declaration.

5. AIR QUALITY AND GREENHOUSE GASES

This section discusses the potential impacts of the implementation of the General Permit on air quality. Specifically, it summarizes relevant federal, State, and local policies; describes existing environmental conditions in the Project area with respect to air quality, and identifies significant impacts that may result from implementation of the Project.

5.1. Air Pollution and Ambient Standards

This section discusses federal, State, and local regulations related to air quality that apply to the Project.

Both the U.S. Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. These ambient air quality standards constitute levels of contaminants that represent safe levels, to avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants which are comprised of six pollutants (ozone, carbon monoxide, particulate matter, sulfur dioxide, lead and nitrogen oxide) for which the U.S. EPA has set standards to protect human health and welfare. They are used as indicators of air quality. The federal and State ambient air quality standards are presented in **Table 5-1**. The federal and State ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and State standards differ in some cases. In general, the State standards are more stringent, as is the case for ozone, inhalable particulate matter smaller than 10 microns in diameter (PM_{10}), and fine particulate matter smaller than 2.5 microns in diameter ($PM_{2.5}$).

Geographic areas are assigned designation categories. There are three basic designation categories: nonattainment, attainment, and unclassified. A "nonattainment" designation indicates that the air quality violates an ambient air quality standard. Although a number of areas may be designated as nonattainment for a particular pollutant, the severity of the problem can vary greatly. To identify the severity of the problem and the extent of planning required, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem (e.g., moderate, serious or severe). In contrast to nonattainment, an "attainment" designation indicates that the air quality does not violate the established standard. Finally, an "unclassified" designation indicates that there are insufficient data for determining attainment or nonattainment. U.S. EPA combines unclassified and attainment into one designation for ozone, carbon monoxide (CO), PM_{10} and $PM_{2.5}$.

Pollutants of Concern

For projects similar to the General Permit, air quality pollutants that are of greatest concern are ozone, particulate matter, CO, and naturally occurring asbestos (NOA).

- **Ozone.** Prior to 2005, both State and federal standards for ozone were set for a one-hour averaging time. The State ozone standard is 0.09 parts per million (ppm), not to be exceeded. The federal one-hour standard was 0.12 ppm and was not to be exceeded more than three times in any three-year period. A federal eight-hour standard for ozone was issued in July 1997 by Executive Order of the President. The eight-hour ozone standard has been set at a concentration of 0.075 ppm ozone measured over eight hours. As of June 15, 2005, the federal one-hour ozone standard was revoked. In setting the eight-hour ozone standard, U.S. EPA concluded that replacing the existing

one-hour standard with an eight-hour standard was appropriate to provide adequate and uniform protection of public health from both short-term (one to three hours) and prolonged (six to eight hours) exposures to ozone.

Ozone is not emitted directly into the air, but is formed by a photochemical reaction in the atmosphere. Ozone precursors, which include reactive organic gases (ROG) and nitrogen oxides (NO_x), react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Once formed, ozone remains in the atmosphere for one or two days. It is then eliminated through chemical reaction with plants and by rainfall and rain wash-down.

- **Particulate Matter.** State and federal standards for particulate matter are based on micrograms per cubic meter ($\mu g/m^3$) for a 24-hour average and as an annual geometric mean.

  PM_{10} is sometimes referred to as “inhalable particulate matter” or “respirable particulate matter”. The State standards for PM_{10} are 50 $\mu g/m^3$ 24-hour average, and 20 $\mu g/m^3$ annual geometric mean. The federal PM_{10} standard is a 24-hour average of 150 $\mu g/m^3$.

  A federal standard for $PM_{2.5}$ was issued in July 1997 by Executive Order of the President. $PM_{2.5}$ is sometimes referred to as “fine particulate matter.” The $PM_{2.5}$ standard has been set at a concentration of 15 $\mu g/m^3$ annually and 35 $\mu g/m^3$ daily. The federal standards for PM_{10} are being maintained so that relatively larger particulate matter continues to be regulated. The State $PM_{2.5}$ standard is an annual average of 12 $\mu g/m^3$.

  PM_{10} and $PM_{2.5}$ can reach the lungs when inhaled, resulting in health concerns related to respiratory disease. Suspended particulate matter can also affect vision or contribute to eye irritation. PM_{10} can remain in the atmosphere for up to seven days before removal by gravitational settling, rainfall, and wash-down.

- **Carbon Monoxide.** State and federal CO standards have been set for both one-hour and eight-hour averaging times. The State one-hour standard is 20 ppm by volume, while the federal one-hour standard is 35 ppm. Both State and federal standards are 9 ppm for the eight-hour averaging period. CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream.

  Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter when periods of light winds combine with the formation of ground level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

Table 5-1: Ambient Air Quality Standards

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[10]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[10]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (10/1/15)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (10/1/15)**

- **Naturally-Occurring Asbestos.** Naturally occurring asbestos (NOA) was identified as a toxic air contaminant (TAC) in 1986 by CARB. NOA is located in many parts of California and is commonly associated with ultramafic rocks. “Asbestos” is the common name for a group of naturally-occurring fibrous silicate minerals that can separate into thin but strong and durable fibers. Ultramafic rocks form in high-temperature environments well below the surface of the earth. By the time they are exposed at the surface by geologic uplift and erosion, ultramafic rocks may be partially to completely altered into a type of metamorphic rock called “serpentinite.” Sometimes the metamorphic conditions are right for the formation of chrysotile asbestos or tremolite-actinolite asbestos in the bodies of these rocks, along their boundaries, or in the soil.

  For individuals living in areas with naturally occurring asbestos, there are many potential pathways for airborne exposure. Exposures to soil dust containing asbestos can occur under a variety of scenarios, including children playing in the dirt; dust raised from unpaved roads and driveways covered with crushed serpentine; grading and earth disturbance associated with construction activity; quarrying; gardening; and other human activities. For homes built on asbestos outcroppings, asbestos can be tracked into the home and can also enter as fibers suspended in the air. Once such fibers are indoors, they can be entrained into the air by normal household activities, such as vacuuming (as many inhalable fibers will simply pass through vacuum cleaner bags).

  People exposed to low levels of asbestos may be at elevated risk (e.g., above background rates) of lung cancer and mesothelioma. The risk is proportional to the cumulative inhaled dose (quantity of fibers), and also increases with the time since first exposure. Although there are a number of factors that influence the disease-causing potency of any given asbestos (such as fiber length and width, fiber type, and fiber chemistry), all forms are carcinogens.

5.2. Regulatory Setting

The following description of regulatory setting is based on material presented in the BAAQMD document *California Environmental Quality Act Air Quality Guidelines* (Bay Area Air Quality Management District, 2012). Both the Napa River watershed and the Sonoma Creek watershed (the Project area) fall within the jurisdiction of the BAAQMD.

Air quality within the SFBAAB is regulated by such agencies as the BAAQMD, CARB, and U.S. EPA. Each of these agencies develops rules, regulations, policies, and/or goals to attain the goals or directives imposed through legislation. Although the U.S. EPA regulations may not be superseded, both State and local regulations may be more stringent.

Bay Area is currently designated as a nonattainment area for State and federal ozone standards and as a nonattainment area for the State particulate matter (particles with diameter 10 micrometers or less, referred to as PM_{10} and particles with diameter 2.5 micrometers or less, referred to as $PM_{2.5}$) standards. As required by federal and State air quality laws, the 2001 Bay Area Ozone Attainment Plan and the 2000 Bay Area Clean Air Plan have been prepared to address ozone nonattainment issues. In addition, the BAAQMD, in cooperation with the Metropolitan Transportation Commission and the Association of Bay Area Governments, prepared the Bay Area 2005 Ozone Strategy. This report describes the Bay Area’s strategy for compliance with State one-hour ozone standard planning requirements and how to improve air quality in the region and reduce transport of air emissions to neighboring air basins. No PM_{10} plan has been prepared nor is one currently required under State air quality planning law.

Federal Air Quality Regulations

U.S. EPA is charged with implementing federal air quality programs. U.S. EPA's air quality mandates are drawn primarily from the Federal Clean Air Act (FCAA), which was enacted in 1963. The FCAA was amended in 1970, 1977, and 1990.

The FCAA required U.S. EPA to establish primary and secondary federal ambient air quality standards (NAAQS), which are shown in Table 5-1. The FCAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The Federal Clean Air Act Amendments of 1990 (FCAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. U.S. EPA has responsibility to review all state SIPs to determine conformance with the mandates of the FCAAA and determine if implementation will achieve air quality goals. If the U.S. EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures. Failure to submit an approvable SIP or to implement the plan within the mandated timeframe may result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

State Air Quality Regulations

CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA), which was adopted in 1988. The CCAA requires that all air districts in the State endeavor to achieve and maintain the California ambient air quality standards (CAAQS) by the earliest practical date. The act specifies that districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides districts with the authority to regulate indirect sources.

CARB is primarily responsible for developing and implementing air pollution control plans to achieve and maintain the NAAQS. CARB is primarily responsible for statewide pollution sources and produces a major part of the SIP. Local air districts are still relied upon to provide additional strategies for sources under their jurisdiction. CARB combines these data and submits the completed SIP to U.S. EPA.

Other CARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts), establishing CAAQS (which in many cases are more stringent than the NAAQS), determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, and off-road vehicles.

In 1992 and 1993, CARB requested delegation of authority for the implementation and enforcement of specified New Source Performance Standards (NSPS) and Federal Emission Standards for Hazardous Air Pollutants (NESHAPS) to the following local agencies: the BAAQMD and the South Coast Air Quality Management Districts (SCAQMD). U.S. EPA's review of the State of California's laws, rules, and regulations showed them to be adequate for the implementation and enforcement of these federal standards, and U.S. EPA granted the delegations as requested.

The California Clean Air Act, section 39610 (a), directs CARB to "identify each district in which transported air pollutants from upwind areas outside the district cause or contribute to a violation of the ozone standard and to identify the district of origin of transported pollutants." The information regarding the transport of air pollutants from one basin to another was to be quantified to assist interrelated basins in the preparation of plans for the attainment of State ambient air quality standards. Numerous studies conducted by CARB have identified air basins that are impacted by pollutants transported from other air

basins (as of 1993). Among the air basins affected by air pollution transport from the SFBAAB are the North Central Coast Air Basin, the Mountain Counties Air Basin, the San Joaquin Valley Air Basin, and the Sacramento Valley Air Basin. The SFBAAB was also identified as an area affected by the transport of air pollutants from the Sacramento region.

Local Air Quality Regulations

Both the Napa River watershed and the Sonoma Creek watershed (the entire Project area) fall within the jurisdiction of the BAAQMD.

The BAAQMD attains and maintains air quality conditions in the SFBAAB through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the BAAQMD includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. The BAAQMD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the FCAA, FCAAA, and the CCAA.

California Environmental Quality Act (CEQA) Air Quality Guidelines

In 2012, the BAAQMD released its latest update to its *California Environmental Quality Act Air Quality Guidelines* (Bay Area Air Quality Management District, 2012). This is an advisory document that provides the lead agency, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. The handbook contains the following applicable components:

1. Criteria and thresholds for determining whether a project may have a significant adverse air quality impact;
2. Specific procedures and modeling protocols for quantifying and analyzing air quality impacts;
3. Methods available to mitigate air quality impacts; and
4. Information for use in air quality assessments and environmental documents that will be updated more frequently such as air quality data, regulatory setting, climate, topography.

Air Quality Plans

As stated above, the BAAQMD prepares plans to attain ambient air quality standards in the SFBAAB. The BAAQMD prepares ozone attainment plans (OAP) for the federal ozone standard and clean air plans (CAP) for the California standard both in coordination with the Metropolitan Transportation Commission and the Association of Bay Area Governments (ABAG).

With respect to applicable air quality plans, the BAAQMD prepared the *Bay Area 2010 Clean Air Plan* (Bay Area Air Quality Management District 2010a) to address nonattainment of the federal 1-hour ozone standard in the SFBAAB. The purpose of the 2010 Clean Air Plan is to:

1. Update the Bay Area 2005 Ozone Strategy (Bay Area Air Quality Management District, 2006) in accordance with the requirements of the California Clean Air Act to implement “all feasible measures” to reduce ozone;
2. Consider the impacts of ozone control measures on particulate matter (PM), air toxics, and greenhouse gases in a single, integrated plan;

3. Review progress in improving air quality in recent years; and
4. Establish emission control measures to be adopted or implemented in the 2009-2012 timeframe.

Similarly, the BAAQMD prepared the 2010 Clean Air Plan to address nonattainment of the CAAQS.

Naturally-Occurring Asbestos

The following description of the NOA regulatory setting is from the BAAQMD *California Environmental Quality Act Air Quality Guidelines* (Bay Area Air Quality Management District, 2012).

The BAAQMD enforces the ARB Airborne Toxic Control Measures (ATCM), which regulate NOA emissions from grading, quarrying, and surface mining operations at sites, which contain ultramafic rock. The provisions that cover these operations are found specifically in Title 17 of the California Code of Regulations, section 93105. The ATCM for Construction, Grading, Quarrying and Surface Mining Operations was signed into State law on July 22, 2002, and became effective in the SFBAAB on November 19, 2002. The purpose of this regulation is to reduce public exposure to NOA from construction and mining activities that emit or re-suspend dust that may contain NOA.

The ATCM requires regulated operations engaged in road construction and maintenance activities, construction and grading operations, and quarrying and surface mining operations in areas where NOA is likely to be found, to employ the best available dust mitigation measures to reduce and control dust emissions.

The BAAQMD NOA program requires that the applicable notification forms from the Air District's website be submitted by qualifying operations in accordance with the procedures detailed in the ATCM Inspection Guidelines Policies and Procedures. The CEQA lead agency should reference BAAQMD's ATCM Policies and Procedures to determine which NOA Notification Form is applicable to the proposed project.

Using the geologic map of the SFBAAB (http://geomaps.wr.usgs.gov/sfgeo/geologic/details.html), the lead agency should discuss whether a proposed project would be located in "areas moderately likely to contain NOA." If a project would not involve earth-disturbing construction activity in one of these areas or would not locate receptors in one of these areas then it can be assumed that the project would not have the potential to expose people to airborne asbestos particles.

Asbestos occurs naturally in certain geologic settings in California, most commonly associated with ultramafic rocks and along associated faults. According to the Division of Mines and Geology, naturally occurring asbestos has been associated with ultramafic rock outcroppings in scattered locations within Napa County and within the Project Area.

5.3. Environmental Setting

Climate & Meteorology

The summer climate of the West Coast is dominated by a semi-permanent high-pressure area centered over the northeastern Pacific Ocean. Because this high-pressure cell is quite persistent, storms rarely affect the California coast during the summer. Thus, the conditions that persist along coastal California during summer are a northwest airflow and negligible precipitation. A thermal low pressure area from the Sonoran-Mojave Desert also causes air to flow onshore over the San Francisco Bay Area much of the summer.

The steady northwesterly flow around the eastern edge of the Pacific high-pressure cell exerts a stress on the ocean surface along the west coast. This induces upwelling of cold water from below. Upwelling produces a band of cold water that is approximately 80 miles wide off San Francisco. During July, the surface waters off San Francisco are 30 degrees Fahrenheit (F) cooler than those off Vancouver, more than 700 miles farther north.

Air approaching the California coast, already cool and moisture-laden from its long trajectory over the Pacific, is further cooled as it flows across this cold bank of water near the coast, thus accentuating the temperature contrast across the coastline. This cooling is often sufficient to produce condensation - a high incidence of fog and stratus clouds along the Northern California coast in summer.

In winter, the Pacific High weakens and shifts southward, upwelling ceases, and winter storms become frequent. Almost all of the Bay Area's annual precipitation takes place in the November through April period. During the winter rainy periods, inversions are weak or nonexistent, winds are often moderate, and air pollution potential is very low. During winter periods when the Pacific High becomes dominant, inversions become strong and often are surface-based; winds are light and pollution potential is high. These periods are characterized by winds that flow out of the Central Valley into the Bay Area and often include tule fog.

More detailed descriptions of climate and meteorology in the Napa River watershed and Sonoma Creek watershed areas are presented below.

Attainment Designations

The Project area is in the San Francisco Bay Area Air Basin (SFBAAB). The current air quality attainment designations for the SFBAAB are summarized in **Table 5-2**.

Table 5-2: Air Quality Attainment Status Designations for San Francisco Bay Area Air Basin

Pollutant	State Standards [1]	Federal Standards [2]
Ozone	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Attainment
Nitrogen Dioxide	Attainment	Unclassifiable/Attainment
Sulfur Dioxide	Attainment	Attainment
Inhalable Particulate Matter (PM_{10})	Nonattainment	Unclassifiable
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment	Nonattainment
Sulfates	Attainment	N/A
Lead	N/A	Attainment
Hydrogen Sulfide	Unclassified	N/A
Visibility Reducing Particles	Unclassified	N/A

Notes: N/A – not applicable, standard does not exist for the pollutant.

[1] Unclassified: a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment. Attainment: a pollutant is designated attainment if the state standard for that pollutant was not violated at any site in the area during a 3-year period. Nonattainment: a pollutant is designated nonattainment if there was a least one violation of a state standard for that pollutant in the area.

[2] Nonattainment: any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the federal primary or secondary ambient air quality standard for the pollutant. Attainment: any area that meets the federal primary or secondary ambient air quality standard for the pollutant. Unclassifiable: any area that cannot be classified on the basis of available information as meeting or not meeting the federal primary or secondary ambient air quality standard or the pollutant.

Source: Bay Area Air Quality Management District

Napa River Watershed

Climate & Meteorology. The Napa Valley is nestled between the Mayacamas Mountains to the west and the Vaca Mountains to the east. These mountains are effective barriers to the prevailing northwesterly winds with an average ridgeline height of about 2,000 feet, some peaks approaching 3,000 feet and 4,344-foot Mt. Saint Helena. The valley is 27 miles long, with Napa and Calistoga defining its southern and northern ends, respectively. It is widest, 4.75 miles, at its southern end and narrows northward to less than a mile at Calistoga. A minor pass, Knight's Valley, links the northern end of the valley to the Alexander Valley north of Healdsburg.

An up-valley wind frequently develops during warm summer afternoons, drawing from air flowing through the San Pablo Bay. During the evening, especially in the winter, down-valley drainage flow can occur. At the Bay Area Air Quality Management District (BAAQMD) monitoring station in Napa, the prevailing winds are up-valley, southwest through south southeasterly, and occur about 53 percent of the time. The second most common winds are down-valley drainage winds, north northwesterly through northeasterly, which occur 26 percent of the time.

Wind speeds are low with almost 50 percent of the winds between calm and four miles per hour (mph) and an average speed of about five mph. Only five percent of the winds are between 16 and 18 mph, which represent strong summer time up-valley winds and winter storm winds. Summer average maximum temperatures at the southern end of the valley are in the low 80s F with extremes in the high 80s F, and at the northern end are in the low 90s F with extremes in the high 90s F. Summer minima are in the low 50s F. Winter maxima are in the high 50s F and low 60s F with minima in the high to mid-30s F, with the slightly cooler temperatures favoring the northern end. Winter minima extremes range from the high 20s F to the mid-20s F. Sunshine is plentiful and annual precipitation averages range from 43 inches at Angwin in the mountains at 1,820 feet, 38 inches at Calistoga, to 24 inches at Napa.

Air pollution potential is high. Summer and fall prevailing winds can transport non-local and locally generated ozone precursors northward where the valley narrows, effectively trapping and concentrating the pollutants under stable conditions. The local upslope and downslope flows set up by the surrounding mountains may also recirculate pollutants adding to the total burden. In addition, the high frequency of light winds and associated stable conditions during the late fall and winter contributes to the buildup of particulates and carbon monoxide from automobiles, agricultural burning and fireplace burning.

Air Quality Monitoring. Table 5-3 presents monitoring data for ozone and CO. **Table 5-4** presents monitoring data for PM_{10}, and $PM_{2.5}$. Data for the latest available three-year period (2011 through 2013) are presented for the representative monitoring stations closest to the Napa River Watershed portion of the Project area.

Table 5-3: Ozone and Carbon Monoxide Air Quality Monitoring Results – Napa River Watershed				
	Pollutant Concentration by Year			
Pollutant Type, Station and Measurement	Air Quality Standard	2011	2012	2013
Ozone at Napa - Jefferson Avenue				
Highest 1-Hour Average (parts per million)	0.09	0.083	0.082	0.089
Second Highest 1-Hour Average (parts per million)	(State)	0.082	0.081	0.077
Highest 8-Hour Average (parts per million)	0.070	0.070	0.064	0.076
Second Highest 8-Hour Average (parts per million)	(State)	0.065	0.061	0.071
Carbon Monoxide at Napa - Jefferson Avenue				
Highest 8-Hour Average (parts per million)	9.0	2.05	1.48	*
Second Highest 8-Hour Average (parts per million)	(State)	1.52	1.43	*

Source: California Air Resources Board website: http://www.arb.ca.gov/

Note: Data are shown for the station that is most representative of conditions at Vineyard Properties.

Asterisk (" * ") indicates insufficient data are available.

Table 5-4: Particulate Matter Air Quality Monitoring Results - Napa River Watershed				
	Pollutant Concentration by Year			
Pollutant Type, Station and Measurement	Air Quality Standard	2011	2012	2013
Inhalable Particulate Matter (PM_{10}) at Napa - Jefferson Avenue				
Highest 24-Hour Average (micrograms/cubic meter)	50	55.3	37.7	39.6
Second Highest 24-Hour Average (micrograms/cubic meter)	(State)	45.9	36.7	38.1
Annual Average (micrograms/cubic meter)	20	20.2	16.1	18.7
	(State)			
Fine Particulate Matter ($PM_{2.5}$) at Napa - Jefferson Avenue				
Highest 24-Hour Average (micrograms/cubic meter)	35	43.2	27.6	35.8
Second Highest 24-Hour Average (micrograms/cubic meter)	(Federal)	38.6	24.4	29.6
Annual Average (micrograms/cubic meter)	12	*	*	11.7
	(State)			

Source: California Air Resources Board website: http://www.arb.ca.gov/

Note: Data are shown for the station that is most representative of conditions at Vineyard Properties.

Asterisk (" * ") indicates insufficient data are available.

Emissions Inventory. Table 5-6 presents estimates of emissions currently generated in Napa County. The information presented in **Table 5-6** is divided into emission source categories. For current emissions, the major source category that generates the largest amount of reactive organic gases (ROG), CO, and NO_x emissions in Napa County is On-Road Motor Vehicles. For current emissions, the major source category that generates the largest amount of PM_{10} and $PM_{2.5}$ emissions in Napa County is Miscellaneous Processes, which include such sources as residential fuel combustion, farming operations, construction and demolition, paved road dust, fugitive windblown dust, fires, waste burning and disposal, cooking, and other processes.

Table 5-6: Napa County - Emissions Inventory for 2012

Emission Category	Reactive Organic Gases	Carbon Monoxide	Nitrogen Oxides	Inhalable Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
Fuel Combustion	0.0	0.3	0.3	0.0	0.0
Waste Disposal	0.1	0.1	0.0	-	-
Cleaning & Surface Coatings	0.5	0.0	0.0	-	-
Petroleum Production & Mkting	0.2	-	-	-	-
Industrial Processes	0.6	0.0	0.0	0.0	0.0
Solvent Evaporation	1.2	-	-	-	-
Miscellaneous Processes	0.6	5.3	0.4	4.6	1.3
On-Road Motor Vehicles	2.4	25.1	5.3	0.4	0.2
Other Mobile Sources	2.2	12.6	2.1	0.2	0.2
TOTAL	7.9	43.4	8.2	5.2	1.7

Notes: 2012 is the latest inventory available from the California Air Resources Board (CARB).

All values are in tons per day.

Dashes indicate no data are reported.

The sum of values may not equal total shown due to rounding.

Source: CARB website: http://arb.ca.gov

Sonoma Creek Watershed

Climate & Meteorology. The valley that stretches from Santa Rosa to the San Pablo Bay is known as the Cotati Valley at the north end and the Petaluma Valley at the south end. Some maps show the whole area as the Petaluma Valley. The Sonoma Creek Watershed is along the eastern edge of this area, and is influenced by climate and meteorology in this area. The largest city in the Cotati Valley is Santa Rosa, and in the Petaluma Valley is Petaluma. To the east, the valley is bordered by the Sonoma Mountains, with the San Pablo Bay at the southeast end of the valley. To the immediate west are a series of low hills and further west are the Estero Lowlands, which opens to the Pacific Ocean. The region from the Estero Lowlands to the San Pablo Bay is known as the Petaluma Gap. This low-terrain area is a major transport corridor, allowing marine air to pass into the Bay Area.

Wind patterns in the Petaluma and Cotati Valleys are strongly influenced by the Petaluma Gap. The predominant wind pattern in this region is for marine air to move eastward through the Petaluma Gap, then to split into northward and southward paths as it moves into the Cotati and Petaluma Valleys. The southward path crosses the San Pablo Bay and moves eastward through the Carquinez Straits. Consequently, although Santa Rosa and Petaluma are only 16 miles apart, predominate wind patterns in these areas are quite different. Santa Rosa's prevailing winds are out of the south and southeast, while Petaluma's prevailing winds are out of the northwest. When the ocean breeze is weak, a bay breeze pattern can also occur, resulting in east winds near the bay. Strong winds from the east occur as part of a larger scale pattern and often carry pollutants picked up along the trajectory through the Central Valley and the Carquinez Straits. During these periods, up-valley flows can carry the polluted air as far north as Santa Rosa.

Winds are usually stronger in the Petaluma Valley than the Cotati Valley because it is part of the Petaluma Gap. The low terrain in the Petaluma Gap does not offer much resistance to the marine air as it flows to the San Pablo Bay. Consequently, even though Petaluma is 28 miles from the ocean, its climate is similar to areas closer to the coast. Average annual wind speed at the Petaluma Airport is seven mph. This is almost identical to the average annual wind speed measured in Valley Ford, five miles from the coast. Winds are light in the morning in the Petaluma Valley, and become windy in the afternoon as the sea breeze arrives. The Cotati Valley, being slightly north of the Petaluma Gap experiences lower wind speeds. In Santa Rosa, the annual average wind speed is 5.4 mph.

During summer afternoons, the fetch across the Petaluma Gap is sufficiently long so that the marine air is warmed and the fog evaporated before it reaches the Petaluma and Cotati valleys. As the surface heating weakens in the late afternoon, the marine layer becomes less heated with distance, and eventually fog is able to form in these valleys. The fog may then persist until late in the morning the next day.

Air temperatures are very similar in the two valleys. Average maximum temperatures in Santa Rosa are 1 degree F higher than in Petaluma. Summer maximum temperatures for this region are in the low 80's F, while winter maximum temperatures are in the high 50s F to low 60s F. The reverse is true for average minimum temperatures, with Petaluma being 1 degree F warmer than Santa Rosa. Summer minimum temperatures are 50-51 degrees F, and wintertime minimum temperatures are 36-40 degrees F.

Rainfall averages are 24 inches per year at Petaluma, and 30 inches at Santa Rosa. Santa Rosa's rainfall is higher because the air is lifted and cooled in advance of the Sonoma Mountains, thereby causing condensation of the moisture. Consistent with the Bay Area Mediterranean climate, Santa Rosa receives 81 percent of its annual rainfall from November through March; and at Petaluma, 83 percent during that same period.

Generally, air pollution potential is low in the Petaluma Valley because of its link to the Petaluma Gap, and because of its low population density. However, there are two scenarios that could produce elevated pollutant levels. Stagnant conditions could occur in the morning hours with a weak ocean flow meeting a weak bay breeze flow. Another scenario can occur during the afternoon when a synoptically induced east wind pattern advects pollution from the Central Valley to Petaluma.

The Cotati Valley lacks a gap to the sea, accommodates a larger population, and has a natural barrier at its northern and eastern ends; therefore it has a higher pollution potential than does the Petaluma Valley. During stagnant conditions, polluted air carried up the Cotati Valley by diurnal up-valley flow, and added to by local emissions, could be trapped against the mountains to the north and east.

Air Quality Monitoring. Table 5-7 presents air quality monitoring data for ozone and CO for the Sonoma Creek watershed. **Table 5-8** presents monitoring data for PM_{10}, and $PM_{2.5}$. Data for the latest available three-year period (2011 through 2013) are presented for the representative monitoring stations closest to the General Permit Sonoma Creek Watershed Project area.

Table 5-7: Ozone and Carbon Monoxide Air Quality Monitoring Results - Sonoma Creek Watershed

	Pollutant Concentration by Year			
Pollutant Type, Station and Measurement	Air Quality Standard	2011	2012	2013
Ozone at Santa Rosa - 5th Street				
Highest 1-Hour Average (parts per million)	0.09	0.073	0.064	0.074
Second Highest 1-Hour Average (parts per million)	(State)	0.065	0.062	0.068
Highest 8-Hour Average (parts per million)	0.070	0.054	0.520	0.065
Second Highest 8-Hour Average (parts per million)	(State)	0.050	0.051	0.058
Carbon Monoxide at Santa Rosa - 5th Street				
Highest 8-Hour Average (parts per million)	9.0	1.19	1.48	*
Second Highest 8-Hour Average (parts per million)	(State)	1.16	1.38	*

Source: California Air Resources Board website: http://www.arb.ca.gov/

Note: Data are not available for the Sonoma Creek Watershed. Data are shown for the closest representative station.

Asterisk (" * ") indicates insufficient data are available.

Table 5-8: Particulate Matter Air Quality Monitoring Results - Sonoma Creek Watershed				
	Pollutant Concentration by Year			
Pollutant Type, Station and Measurement	**Air Quality Standard**	**2011**	**2012**	**2013**
Inhalable Particulate Matter (PM_{10}) at Healdsburg - 133 Matheson Street				
Highest 24-Hour Average (micrograms/cubic meter)	50	46.0	38.0	55.0
Second Highest 24-Hour Average (micrograms/cubic meter)	(State)	36.0	29.0	28.0
Annual Average (micrograms/cubic meter)	20	13.2	10.6	12.8
	(State)			
Fine Particulate Matter ($PM_{2.5}$) at Santa Rosa - 5th Street				
Highest 24-Hour Average (micrograms/cubic meter)	35	33.2	25.7	28.1
Second Highest 24-Hour Average (micrograms/cubic meter)	(Federal)	28.7	24.2	27.8
Annual Average (micrograms/cubic meter)	12	8.6	8.2	8.6
	(State)			

Source: California Air Resources Board website: http://www.arb.ca.gov/

Note: Data are not available for the Sonoma Creek Watershed. Data are shown for the closest representative station.

Emissions Inventory. Table 5-9 presents estimates of emissions currently generated in the SFBAAB portion of Sonoma County. As previously noted, the entire Sonoma County portion of the Project area falls within the SFBAAB district boundary. The information presented in **Table 5-9** is divided into emission source categories. For current emissions, shown in **Table 5-9**, the major source category that generates the largest amount of ROG, CO, and NO_x emissions in the SFBAAB portion of Sonoma County is On-Road Motor Vehicles. For current emissions, the major source category that generates the largest amount of PM_{10} and $PM_{2.5}$ emissions in the SFBAAB portion of Sonoma County is Miscellaneous Processes which include sources such as farming, paved road dust, residential fuel consumption, and construction and demolition.

Table 5-9: San Francisco Bay Area Air Basin Portion of Sonoma County - Emissions Inventory for 2012

Emission Category	Reactive Organic Gases	Carbon Monoxide	Nitrogen Oxides	Inhalable Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
Fuel Combustion	0.1	0.6	0.6	0.0	0.0
Waste Disposal	0.1	0.0	0.0	-	-
Cleaning & Surface Coatings	1.5	0.0	0.0	-	-
Petroleum Production & Mkting	0.6	-	-	-	-
Industrial Processes	0.5	0.0	0.0	0.5	0.2
Solvent Evaporation	3.5	-	-	-	-
Miscellaneous Processes	2.6	17.5	1.1	8.5	3.4
On-Road Motor Vehicles	5.8	52.4	10.5	0.8	0.4
Other Mobile Sources	2.9	22.9	3.8	0.3	0.3
	17.6	93.5	16.0	10.1	4.3

Notes: 2012 is the latest inventory available from the California Air Resources Board (CARB).

All values are in tons per day.

Dashes indicate no data are reported.

The sum of values may not equal total shown due to rounding.

Source: CARB website: http://arb.ca.gov

5.4. Impact Analysis Methods

Thresholds of Significance

The following evaluation of air quality impacts was prepared by considering potential locations for BMP construction, applicable regulations and guidelines, and typical construction activities and operations that would be attributable to the General Permit. The assessment of potential impacts include review of documents, maps, and observation of existing vineyard operations, and consultation with persons currently involved with permitting or environmental documentation for vineyard operations (e.g., local government planning department staff, county agricultural commissioner's office staff, etc.). The following description of air quality impacts and mitigation measures is common to all BMPs in both the Napa River and Sonoma Creek watersheds.

For this analysis, an impact pertaining to Air Quality was considered significant under CEQA if it would result in any of the following environmental effects, which are based on professional practice and CEQA Guidelines Appendix G (Cal. Code Regs., tit. 14, §§ 15000 *et seq*.). Thus, a significant impact would result if the Project would:

a) Conflict with or obstruct implementation of the applicable air quality plan;

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

d) Expose sensitive receptors to substantial pollutant concentrations; or,

e) Create objectionable odors affecting a substantial number of people.

Furthermore the EIR notes note the following guidance provided by the BAAQMD (Bay Area Air Quality Management District 2014):

> On June 2, 2010, the Bay Area Air Quality Management District's Board of Directors unanimously adopted thresholds of significance to assist in the review of projects under the California Environmental Quality Act. These Thresholds are designed to establish the level at which the District believed air pollution emissions would cause significant environmental impacts under CEQA and were posted on the Air District's website and included in the Air District's updated CEQA Guidelines (updated May 2012).
>
> On March 5, 2012 the Alameda County Superior Court issued a judgment finding that the Air District had failed to comply with CEQA when it adopted the Thresholds *(California Building Industry Association v. Bay Area Air Quality Management District (CBIA v. BAAQMD))*. The court did not determine whether the Thresholds were valid on the merits, but found that the adoption of the Thresholds was a project under CEQA. The court issued a writ of mandate ordering the District to set aside the Thresholds and cease dissemination of them until the Air District had complied with CEQA. The Air District has appealed the Alameda County Superior Court's decision. The Court of Appeal of the State of California, First Appellate District, reversed the trial court's decision. The Court of Appeal's decision was appealed to the California Supreme Court, which granted limited review.

> In view of the trial court's order which remains in place pending final resolution of the case, the Air District is no longer recommending that the Thresholds be used as a generally applicable measure of a project's significant air quality impacts. Lead agencies will need to determine appropriate air quality thresholds of significance based on substantial evidence in the record. Although lead agencies may rely on the Air District's updated CEQA Guidelines (updated May 2012) for assistance in calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, the Air District has been ordered to set aside the Thresholds and is no longer recommending that these Thresholds be used as a general measure of project's significant air quality impacts. Lead agencies may continue to rely on the Air District's 1999 Thresholds of Significance and they may continue to make determinations regarding the significance of an individual project's air quality impacts based on the substantial evidence in the record for that project.

In December 2015, the California Supreme Court issued its opinion in *CBIA v. BAAQMD.* Ultimately, the Supreme Court reversed the Court of Appeal's decision. The Court remanded the matter back to the appellate court to reconsider the case in light of the Supreme Court's opinion. In light of this ruling, the evaluations of impacts to air rely on the Air District's 1999 Thresholds of Significance, as described below.

Thresholds of Significance for Short-Term Construction-Related Emissions. The following text from the 1999 BAAQMD CEQA Guidelines (Bay Area Air Quality Management District 1999) provide procedures, methods of analyzing air quality impacts, thresholds of significance, and mitigation measures for assessing the air quality impacts of proposed projects and plans. The thresholds of significance for construction-related criteria pollutant emissions, as described below, are applied to this EIR.

> "As noted previously in these Guidelines, the District does not expect Lead Agencies to provide detailed quantification of construction emissions. Similarly, Lead Agencies need not quantify emission reductions from construction-related mitigation measures. The District's recommended approach to mitigating construction emissions focuses on a consideration of whether all feasible control measures are being implemented."
>
> "Construction-related emissions are generally short-term in duration, but may still cause adverse air quality impacts. Fine particulate matter (PM_{10}) is the pollutant of greatest concern with respect to construction activities.[31] PM_{10} emissions can result from a variety of construction activities, including excavation, grading, demolition, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust. Construction-related emissions can cause substantial increases in localized concentrations of PM_{10}. Particulate emissions from construction activities can lead to adverse health effects as well as nuisance concerns such as reduced visibility and soiling of exposed surfaces.
>
> "Construction emissions of PM_{10} can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions and other factors. Despite this variability in emissions, experience has shown that there are a number of feasible control measures that can be reasonably implemented

[31] Construction equipment emits carbon monoxide and ozone precursors. However, these emissions are included in the emission inventory that is the basis for regional air quality plans, and are not expected to impede attainment or maintenance of ozone and carbon monoxide standards in the Bay Area.

to significantly reduce PM_{10} emissions from construction. The District's approach to CEQA analyses of construction impacts is to emphasize implementation of effective and comprehensive control measures rather than detailed quantification of emissions.

"The District has identified a set of feasible PM_{10} control measures for construction activities. These control measures are listed in Table 2. As noted in the table, some measures ("Basic Measures") should be implemented at all construction sites, regardless of size. Additional measures ("Enhanced Measures") should be implemented at larger construction sites (greater than 4 acres) where PM_{10} emissions generally will be higher. Table 2 also lists other PM_{10} controls ("Optional Measures") that may be implemented if further emission reductions are deemed necessary by the Lead Agency.

"The determination of significance with respect to construction emissions should be based on a consideration of the control measures to be implemented. From the District's perspective, quantification of construction emissions is not necessary (although a Lead Agency may elect to do so - see Section 3.3 of these Guidelines, "Calculating Construction Emissions," for guidance). The Lead Agency should review Table 2. If all of the control measures indicated in Table 2 (as appropriate, depending on the size of the project area) will be implemented, then air pollutant emissions from construction activities would be considered a less than significant impact. If all of the appropriate measures in Table 2 will not be implemented, then construction impacts would be considered to be significant (unless the Lead Agency provides a detailed explanation as to why a specific measure is unnecessary or not feasible)."

Thresholds of Significance for Long-Term Operational Emissions. The 1999 BAAQMD CEQA Guidelines (Bay Area Air Quality Management District, 1999) present thresholds of significance for long-term operational emissions. In addition to quantitative mass emission thresholds, the guidelines provide screening thresholds. The screening thresholds identify when project emissions are expected to be so low, the District does not recommend quantification of emissions. The following is from the 1999 BAAQMD CEQA Guidelines.

> "For one of the thresholds of significance (total emissions from project operations), project screening may provide a simple indication of whether a project may exceed the threshold. . . The District generally does not recommend a detailed air quality analysis for projects generating less than 2,000 vehicle trips per day, unless warranted by the specific nature of the project or project setting."

The screening threshold described above is applied in this EIR. If a project is expected to generate fewer than 2,000 vehicle trips per day, criteria pollutant emission impacts are considered to be less than significant.

Thresholds of Significance for Naturally-Occurring Asbestos. Naturally-occurring asbestos has been identified as a toxic air contaminant by CARB. No quantitative significance thresholds have been set for NOA. However, as noted earlier in this EIR, the BAAQMD provides a map that may be used as a screening-level indicator of the likelihood of NOA being present in construction areas. In addition, the California Department of Conservation document titled "*A General Location Guide For Ultramafic Rocks in California - Areas More Likely to Contain Naturally Occurring Asbestos*" (California Department of Conservation, 2000) provides a map showing areas more likely to contain Naturally occurring asbestos.

Most land areas that could be disturbed by construction activities occurring to comply with the General Permit do include soil and/or bedrock areas, which contain naturally occurring asbestos. However, large

subareas of the Lake Hennessey, Bear Creek, Sulphur Creek, and Bear Canyon Creek watersheds are underlain by mélange and/or serpentinite bedrock types that contain naturally occurring asbestos in the soil and/or bedrock.

If an individual BMP project is located outside of areas considered more likely to contain naturally occurring asbestos, it may be considered to have a relatively lower probability of containing asbestos and, in this EIR, will be considered to have a less-than-significant impact.

If an individual BMP project is located within an area considered more likely to contain naturally occurring asbestos, it may be considered to have an elevated probability of containing asbestos and, in this EIR, will be considered to have a significant impact.

Implementation of mitigation measures to reduce asbestos emissions during construction activities would reduce the impact to a less-than-significant level.

5.5. Air Quality Impacts and Mitigation Measures

Impact 5.1 The Project could conflict with or obstruct implementation of the applicable air quality plans.

The BAAQMD monitors priority air pollutants at stations throughout the Bay Area. The Napa monitoring station (the only BAAQMD station in the area affected by the General Permit) is the most representative of air quality conditions in the North Bay where vineyard management practices would be implemented under the General Permit. Criteria air pollutants routinely measured at the Napa Station include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter (PM_{10}). Smaller particle size, $PM_{2.5}$, is not monitored at the Napa Station. Combustion exhaust from the operation of vehicles, such as cars, trucks, and farm equipment may contribute to concentrations of these pollutants. Earthmoving for construction and road work can generate dust that is a source of particulate matter.

The Napa monitoring station data for the years 2007 through 2011 shows that carbon monoxide, nitrogen dioxide, and ozone concentrations are well below State and federal standards. The concentrations of PM_{10} varies throughout the year and is typically below the State standard of 50 micrograms per cubic meter (two days of exceedances in 5 years) and are well below the federal standard of 150 micrograms per cubic meter. Other air quality monitoring stations in the North Bay (San Rafael and Santa Rosa) also report concentrations of all criteria pollutants well below the standards.

Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. PM10 and PM2.5 can reach the lungs when inhaled, resulting in health concerns related to respiratory disease. Suspended particulate matter can also affect vision or contribute to eye irritation. CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream.

The BAAQMD is responsible for preparing regional air quality plans applicable to the SFBAAB. The BAAQMD states in their CEQA Guidelines,

> "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 exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region‘s existing air quality conditions."

Therefore, if a project exceeds the BAAQMD significance thresholds, the project would be considered to conflict with applicable air quality plans.

Short-term impacts

Implementation of BMPs would require various temporary or short-term construction activities, including, site preparation, site grading, trenching, and placement of landscaping/cover crops/vegetated buffers, road shaping, and installation of erosion control features. These construction activities would result in the temporary generation of criteria pollutant emissions. The General Permit could result in minor construction-related emissions of exhaust and dust if grading is needed to construct BMPs, repair or replacement of existing facilities, or repair roads to reduce sediment delivery to receiving waters. Earthmoving produces dust that is mostly PM_{10}. These larger dust particles quickly settle to the ground and when associated with small scale construction pose minor air quality impacts. However, larger scale site improvements (such as road repair, re-contouring, shaping, road relocation, etc.) could result in temporary air emissions at levels that may conflict with exceed or contribute to existing or projected limits, result or contribute to a net increase in non-attainment areas, or expose sensitive receptors to significant, short-term, pollutant concentrations. As a result, the EIR conservatively estimates that short-term, larger scale construction-related criteria pollutant emissions could result in a significant impact.

Long-term impacts

Implementation of BMPs would generate a minor amount of vehicle trips during long-term operations. The vehicle trips would be generated, for example, by:

- Vineyard Property site inspections and compliance monitoring
- Inspecting and maintaining drainage facilities,
- Cover crop maintenance, and
- Maintaining roads that service vineyard facilities.

If a project is expected to generate fewer than 2,000 vehicle trips per day, criteria pollutant emission impacts are considered to be less than significant. While implementation of BMPs would generate vehicle trips, long-term maintenance of BMPs is not expected to generate 2,000 vehicle trips per day. Therefore the impact of long-term maintenance of BMPs on long-term operational criteria pollutant emissions is considered to be less than significant. Mitigation measures are not required.

Construction-Related Entrainment of Naturally-Occurring Asbestos

The exact location of individual BMP construction sites is unknown. Therefore, it is not possible at this stage to identify exactly which sites would be in areas identified as more likely to contain naturally occurring asbestos. As farm plans are completed and planning occurs regarding implementation of additional BMPs, individual sites with high potential for naturally occurring asbestos could be identified. As described earlier, the naturally occurring asbestos screening maps developed by the California Department of Conservation (California Department of Conservation, 2000), should be used by General Permit enrollees to identify whether their BMP project site is in an area considered more likely to contain naturally occurring asbestos.

If an individual BMP construction site is not in an area considered more likely to contain asbestos, this impact is considered less than significant, and no mitigation measures are required.

If an individual BMP construction site is in an area considered more likely to contain asbestos, soil-disturbing construction activity in these areas would result in an elevated risk of entraining asbestos, and this impact is considered to be significant.

Mitigation Measure 5.1 (AQ-1 through AQ-4):

For this EIR, consistent with the approach described in the BAAQMD 1999 CEQA Guidelines, the impact of construction-related emissions for all projects is considered initially significant. For implementation of BMPs with a construction site size of four acres or less, implementation of the Basic Measures (mitigation measure **AQ-1)** described below would reduce this impact to a less than significant level. For implementation of BMPs with a construction site size greater than four acres, implementation of the Enhanced Measures (mitigation measure **AQ-2)** described below would reduce this impact to a less than significant level. For implementation of BMPs that are large in area, located near sensitive receptors, or which for other reasons may warrant additional emissions reductions, implementation of the Optional Measures (mitigation measure **AQ-3)** described below would reduce this impact to a less than significant level. Implementation of mitigation measure **AQ-4**, described below, is recommended in areas considered likely to contain NOA.

The following are the Basic Measures from Table 2 of the 1999 BAAQMD CEQA Guidelines, which describes the measures as those that would be implemented at all construction sites, with AQ-4 being implemented at sites likely to contain NOA. The following descriptions are directly from the BAAQMD CEQA Guidelines and describe measures for the wide range of land use and infrastructure projects that may not be applicable to all BMPS evaluated in this EIR. However, because detailed information on implementation of specific BMPs to comply with the General Permit is not available, the following list is cited to be as inclusive as possible.

AQ-1 Basic Criteria Pollutant Emission Control Measures

The following are the Basic Measures from Table 2 of the 1999 BAAQMD CEQA Guidelines.

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.

AQ-2 Enhanced Criteria Pollutant Emission Control Measures

The following are the Enhanced Measures from Table 2 of the 1999 BAAQMD CEQA Guidelines.

- All “Basic” control measures listed above.
- Hydro-seed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
- Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.)

- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.

AQ-3 Optional Criteria Pollutant Emission Control Measures

The following are the Optional Measures from Table 2 of the 1999 BAAQMD CEQA Guidelines, which describes the measures as those that are strongly encouraged at construction sites that are large in area, located near sensitive receptors or which for any reason may warrant additional emissions reductions:

- Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site.
- Install wind breaks, or plant trees/vegetative wind breaks at windward side(s) of construction areas.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.
- Limit the area subject to excavation, grading and other construction activity at any one time.

AQ-4 Naturally-Occurring Asbestos Emission Reduction Control Measures

Implementation of the following mitigation measure would reduce this impact to a less than significant level.

- Comply with the BAAQMD NOA program and ARB ATCM 93105. Complying with these regulations would reduce the potential for entraining NOA, and reduce this impact to a less than significant level.

Impact Significance after mitigation

Although AQ-1 through AQ-4 would reduce potential construction-related air emissions impacts to less than significant levels, the Water Board would not have oversight of the implementation of proposed mitigation measures related to the air quality impacts of actions to comply with the General Permit. The ability to require such measures is within the purview of jurisdictions with local land use approval and/or permitting authority. In all cases where compliance actions at an individual Vineyard Property meet the CEQA definition of a “Project,” the local land-use authority would issue a CEQA document. In some of those cases, local land use agencies have determined that a categorical exemption applies to the action (e.g. construction of erosion control BMPs within the footprint of existing unpaved roads) or has a streamlined CEQA process in place (e.g. VESCO).

Because authority to determine project-level impacts and to require project-level mitigation lies with the local land use and/or permitting agency for individual projects, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce significant impacts.

Even with mitigation, construction activities could still temporarily exceed local air district threshold levels of significance, depending on the magnitude of the construction activities.

Consequently, the EIR takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that air quality impacts resulting from BMP construction to comply with the General Permit could be significant and unavoidable.

Impact 5.2 Actions taken to comply with the proposed General Permit have the potential to violate air quality standards and/or contribute substantially to an existing or projected air quality violation.

For reasons stated in Impact 5.1, temporary air quality impacts, including emissions of PM10 at most construction sites and at some construction sites naturally occurring asbestos, resulting from compliance with the General Permit could be significant.

Mitigation Measure 5.2. See Mitigation Measures AQ-1 – AQ-4, above.

Impact Significance after mitigation

For the reasons stated in Impact 5.1, the EIR takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that air quality impacts resulting from BMP construction to comply with the General Permit could be significant and unavoidable.

Impact 5.3 Compliance with the General Permit does not have the potential to result in considerable net increases of any non-attainment pollutant for which the project region is under an applicable federal or State ambient air quality standard (including releasing emissions with exceed quantitative thresholds for ozone precursors).

In accordance with BAAQMD CEQA Guidelines, for any project that does not individually have significant operational air quality impacts, the determination of significant cumulative impact should be based on an evaluation of the consistency of the project with the local general plan and of the general plan with the regional air quality plan.

The General Permit will not result in new land uses, housing, or other uses that would generate sustained air emissions. Compliance with the General Permit would not result in the permanent installation of stationary engines such as diesel-fueled motors and therefore would not permanently increase emissions from Vineyard Property operations. The General Permit does not propose land uses that are inconsistent with the current land use designation in the Sonoma County and Napa County general plans (refer to Section X, Land Use and Planning, below). Furthermore, General Permit compliance projects would be consistent with the 2001 Bay Area Ozone Attainment Plan and the 2000 Bay Area Clean Air Plan. Therefore, the Project would not result in a cumulatively considerable net increase in any criteria pollutant. This would be a less than significant impact.

Impact 5.4 Compliance with the General Permit may have the potential to expose sensitive receptors to substantial pollutant concentrations.

Emissions of toxics, for example diesel particulate matter (DPM), can occur from diesel-fueled equipment used for site preparation and construction activities to modify existing roads and road crossings, or to construct new facilities such as detention basins, to manage stormwater discharges, in compliance with the requirements of the General Permit. Although diesel-operated equipment such as tractors and trucks are routinely used at vineyard facilities as part of normal operations, large construction projects, such as road reshaping/repair/realignment and/or detention basin construction, could last several weeks and therefore possibly result in increases in short-term diesel emissions above baseline conditions.

DPM has been identified by CARB as a TAC, based on published evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Health effects include cardiovascular and respiratory hospitalizations, exacerbated chronic heart and lung

disease including asthma, increased respiratory symptoms, decreased lung function in children, and premature death.

Vineyard Properties regulated by the General Permit are located within a Project area of approximately 600 square miles (mi^2) and residential uses in these agriculturally-zoned districts are very low density, typically containing only a few residences. Although vineyards are generally located in rural areas, given the sheer size of the Project area, it is possible that some vineyard properties requiring coverage under the General Permit may be located near schools, hospitals, and other sensitive land uses. Although compliance with the General Permit should not result in the construction and/or operation of new, stationary sources of air emissions, such as diesel engines, construction undertaken to implement the requirements of the General Permit could result in increases in particulates in the air in the immediate vicinity of the grading and construction operation, and could thus expose sensitive receptors to substantial pollutant concentrations. This impact would be significant.

Mitigation Measure 5.3. See Mitigation Measures AQ-1 – AQ-4, above.

Impact Significance after mitigation

For the reasons stated in Impact 5.1, the EIR takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that air quality impacts associated with BMP construction to comply with the General Permit could be significant and unavoidable.

Impact 5.5 Compliance with the General Permit will not create objectionable odors affecting a substantial number of people.

The BAAQMD defines public exposure to offensive odors as a significant impact. In general, the types of land uses that pose potential odor problems include refineries, chemical plants, wastewater treatment plants, landfills, composting facilities, and transfer stations. No such uses are proposed by the General Permit.

Diesel engines may be used for some construction equipment. Odors generated by construction equipment would be variable, depending on the location and duration of use. Diesel odors may be noticeable to some individuals at certain times, but would not affect a substantial number of people given that agriculturally zoned districts contain a low population density. The impact of the Project with regard to odors is considered to be less than significant.

5.6. Greenhouse Gas Emissions

The average surface temperature of the Earth has risen by about one degree Fahrenheit (F) in the past century, with most of that occurring during the past two decades (World Meteorological Organization, 2005). There is evidence that most of the warming over the last 50 years is due to human activities. Human activities, such as energy production and internal combustion vehicles, have increased the amount of climate-changing gases in the atmosphere, which in turn is causing the Earth's average temperature to rise. Rises in average temperature are leading to changes in climate patterns, shrinking polar ice caps and a rise in sea level, with a host of corresponding impacts to humans and ecosystems.

Gases which affect global climate are referred to as greenhouse gases (GHG). GHG are atmospheric gases that act as global insulators by reflecting visible light and infrared radiation back to Earth. Some GHG, such as water vapor, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), occur naturally and are emitted to the atmosphere through natural processes. Although CO_2, CH_4, and N_2O occur naturally in the atmosphere, human activities have changed their atmospheric concentrations. From 1750 to 2004, concentrations of CO_2, CH_4, and N_2O have increased globally by 35, 143, and 18 percent, respectively. Other GHG, such as fluorinated gases, are created and emitted solely through human activities. (U.S. Environmental Protection Agency 2006)

5.6.1. Environmental Setting

The principal GHG that enter the atmosphere because of human activities are CO_2, CH_4, N_2O, and fluorinated gases. Carbon dioxide is the gas that is most commonly referenced when discussing climate change because it is the most commonly emitted gas. While some of the less common gases do make up less of the total GHG emitted to the atmosphere, some have more effect per molecule than CO_2.

Carbon Dioxide

The natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid-1700s, each of these activities has increased in scale and distribution. Carbon dioxide was the first GHG demonstrated to be increasing in atmospheric concentration, with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 ppm. Today, they are around 370 ppm, an increase of well over 30 percent (U.S. Environmental Protection Agency 2006). Left unchecked, the concentration of CO_2 in the atmosphere is projected to increase to a minimum of 535 ppm by 2100 as a direct result of anthropogenic (manmade) sources. This could result in an average global temperature rise of at least two degrees Celsius (Intergovernmental Panel on Climate Change 2007). The California Energy Commission (CEC) estimates that CO_2 emissions account for 84 percent of California's anthropogenic GHG emissions, nearly all of which is associated with fossil fuel combustion (California Energy Commission 2005).

Methane

Methane is an extremely effective absorber of radiation, though its atmospheric concentration is less than CO_2 and its lifetime in the atmosphere is brief (10 – 12 years), compared to some other GHG (such as CO_2, N_2O, and chlorofluorocarbons). Methane has both natural and anthropogenic sources. Landfills, natural gas distribution systems, agricultural activities, fireplaces and wood stoves, stationary and mobile fuel combustion, and gas and oil production field categories are the major sources of these emissions (U.S. Environmental Protection Agency 2006). The CEC estimates that CH_4 emissions from various sources represent 6.2 percent of California's total GHG emissions (California Energy Commission 2005).

Nitrous Oxide

Concentrations of N_2O also began to rise at the beginning of the industrial revolution. Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in fertilizers that contain nitrogen. Use of these fertilizers has increased over the last century. Global concentration for N_2O in 1998 was 314 parts per billion (ppb), and in addition to agricultural sources for the gas, some industrial processes (fossil fuel fired power plants, nylon production, nitric acid production, and vehicle

emissions) also contribute to its atmospheric load (U.S. Environmental Protection Agency, 2006). The CEC estimates that N_2O emissions from various sources represent 6.6 percent of California's total GHG emissions (California Energy Commission, 2005).

Fluorinated Gases

Fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6), are powerful GHG emissions that are emitted from a variety of industrial processes. Fluorinated gases are occasionally used as substitutes for ozone-depleting substances such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and halons, which have been regulated since the mid-1980s because of their ozone destroying potential. Fluorinated gases are typically emitted in smaller quantities than CO_2, CH_4, and N_2O, but each molecule can have a much greater global warming effect. Therefore, fluorinated gases are sometimes referred to as High Global Warming Potential (GWP) gases (U.S. Environmental Protection Agency, 2006). The primary sources of fluorinated gas emissions in the United States include the production of HCFC-22 electrical transmission and distribution systems, semiconductor manufacturing, aluminum production, magnesium production and processing, and substitution for ozone-depleting substances. The CEC estimates that fluorinated gas emissions from various sources represent 3.4 percent of California's total GHG emissions (California Energy Commission, 2005).

Greenhouse Gas Emissions Inventory and Forecast

Table 5.9 presents estimates of GHG emissions generated in California during the years 2000 through 2010. The data are expressed as "million tonnes of CO_2 equivalent" per year. One tonne is sometimes referred to as a "metric ton" and is equal to 2,204.6 pounds.

While CO_2 is the most common component of GHG, several different compounds are components of overall GHG. The different compounds contribute to climate change with varying intensities. The term "CO_2 equivalent" (CO_2e) refers to a weighted composite of these several compounds, expressed as the equivalent amount of CO_2.

Table 5.9 presents estimates of GHG emissions disaggregated into the following four major source categories:

- Transportation,
- Electric Power,
- Commercial and Residential, and
- Industrial.

Table. 5.10 California Greenhouse Gas Inventory for 2000 - 2010

California Environmental Protection Agency
Air Resources Board

California Greenhouse Gas Inventory for 2000-2010
— by Category as Defined in the Scoping Plan

million tonnes of CO2 equivalent - (based upon IPCC Second Assessement Report's Global Warming Potentials)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Transportation	171.87	175.01	181.51	179.47	183.46	186.34	186.95	187.38	178.18	173.34	173.18
On Road	***159.51***	***162.34***	***168.79***	***166.61***	***169.85***	***171.35***	***171.63***	***172.66***	***164.39***	***160.25***	***159.70***
Passenger Vehicles	126.85	129.29	135.63	133.07	134.66	134.83	134.71	134.93	129.37	127.69	126.99
Heavy Duty Trucks	32.66	33.05	33.16	33.53	35.19	36.52	36.93	37.74	35.02	32.56	32.70
Ships & Commercial Boats	***3.21***	***2.99***	***3.28***	***3.42***	***3.42***	***3.69***	***3.74***	***3.71***	***3.62***	***3.42***	***3.39***
Aviation (Intrastate)	***3.86***	***3.70***	***4.00***	***3.84***	***4.37***	***4.84***	***5.04***	***5.26***	***5.22***	***5.33***	***4.76***
Rail	***1.88***	***1.89***	***2.50***	***2.70***	***2.91***	***3.34***	***3.53***	***3.17***	***2.58***	***1.95***	***2.35***
Unspecified	***3.42***	***4.10***	***2.95***	***2.89***	***2.91***	***3.12***	***3.01***	***2.57***	***2.36***	***2.38***	***2.99***
Electric Power	105.76	122.91	109.70	113.65	116.25	108.89	105.55	114.97	121.16	103.58	93.30
In-State Generation	***59.85***	***63.88***	***50.73***	***49.09***	***50.20***	***46.08***	***50.87***	***55.15***	***55.34***	***55.53***	***49.70***
Natural Gas	50.92	55.46	42.16	40.91	42.40	38.11	43.07	47.12	48.02	48.90	43.10
Other Fuels	6.85	6.36	6.37	5.99	5.59	5.77	5.64	5.85	5.15	5.28	5.49
Fugitive and Process Emissions	2.08	2.06	2.20	2.19	2.21	2.19	2.16	2.19	2.16	1.36	1.11
Imported Electricity	***45.91***	***59.03***	***58.97***	***64.57***	***66.05***	***62.81***	***54.69***	***59.81***	***65.83***	***48.05***	***43.59***
Unspecified Imports	14.27	25.43	26.92	32.05	32.92	30.02	27.96	32.73	37.93	14.99	13.45
Specified Imports	31.64	33.60	32.05	32.51	33.13	32.80	26.73	27.08	27.90	33.05	30.14
Commercial and Residential	42.27	41.13	43.10	41.47	42.83	41.18	41.85	42.07	42.39	42.61	43.89
Residential Fuel Use	***29.65***	***28.72***	***28.88***	***28.41***	***29.45***	***28.18***	***28.55***	***28.70***	***29.03***	***28.65***	***29.38***
Natural Gas	28.02	27.42	27.53	26.66	27.37	25.97	26.59	26.72	26.66	26.30	27.03
Other Fuels	1.64	1.30	1.34	1.75	2.07	2.21	1.95	1.98	2.37	2.35	2.36
Commercial Fuel Use	***11.53***	***11.36***	***13.17***	***12.80***	***12.76***	***12.60***	***12.88***	***12.87***	***12.99***	***13.04***	***13.47***
Natural Gas	10.06	10.10	11.90	11.38	11.16	10.93	11.61	11.48	11.16	11.02	11.19
Other Fuels	1.46	1.26	1.27	1.43	1.60	1.67	1.27	1.39	1.83	2.02	2.29
Commercial Cogeneration Heat Output	***1.09***	***1.05***	***1.06***	***0.26***	***0.62***	***0.40***	***0.42***	***0.49***	***0.37***	***0.92***	***1.03***
Industrial	98.43	96.34	97.12	95.29	96.97	96.04	94.29	91.88	94.32	83.60	85.96
Refineries	***32.13***	***32.82***	***33.00***	***33.69***	***32.74***	***33.95***	***35.04***	***34.74***	***34.08***	***28.13***	***30.80***
General Fuel Use	***22.30***	***21.04***	***22.45***	***18.60***	***19.05***	***18.15***	***18.05***	***17.01***	***18.15***	***17.60***	***20.26***
Natural Gas	16.82	14.62	15.18	11.97	12.80	12.72	12.38	11.56	12.37	11.46	13.46
Other Fuels	5.48	6.41	7.27	6.63	6.25	5.43	5.67	5.45	5.77	6.14	6.80
Oil & Gas Extraction [1]	***17.75***	***17.77***	***16.52***	***18.21***	***17.93***	***16.71***	***14.01***	***14.63***	***17.81***	***16.71***	***15.78***
Fuel Use	17.07	16.94	15.79	17.47	17.56	16.37	13.24	13.83	17.02	15.92	15.00
Fugitive Emissions	0.69	0.83	0.73	0.74	0.37	0.35	0.77	0.80	0.79	0.79	0.78
Cement Plants	***9.39***	***9.50***	***9.60***	***9.70***	***9.80***	***9.90***	***9.73***	***9.13***	***8.62***	***5.72***	***5.55***
Clinker Production	5.43	5.52	5.60	5.68	5.77	5.85	5.80	5.55	5.28	3.60	3.46
Fuel Use	3.96	3.98	4.00	4.01	4.03	4.05	3.93	3.58	3.33	2.12	2.09
Cogeneration Heat Output	***11.69***	***10.47***	***10.65***	***10.59***	***12.91***	***12.40***	***12.15***	***11.14***	***10.39***	***10.26***	***7.72***
Other Fugitive and Process Emissions	***5.17***	***4.73***	***4.90***	***4.51***	***4.56***	***4.93***	***5.30***	***5.23***	***5.27***	***5.18***	***5.84***

Last Updated: Tuesday, February 19, 2013

Table 5.10: California Greenhouse Gas Inventory for 2000 – 2010 (Continued)

California Environmental Protection Agency
Air Resources Board

California Greenhouse Gas Inventory for 2000-2010
— by Category as Defined in the Scoping Plan

million tonnes of CO2 equivalent - (based upon IPCC Second Assessement Report's Global Warming Potentials)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
Recycling and Waste	6.25	6.34	6.29	6.39	6.34	6.65	6.75	6.71	6.90	6.94	6.98	
Landfills [2]	*6.13*	*6.21*	*6.14*	*6.23*	*6.17*	*6.47*	*6.54*	*6.49*	*6.66*	*6.70*	*6.72*	
Composting	*0.12*	*0.13*	*0.15*	*0.16*	*0.17*	*0.19*	*0.20*	*0.22*	*0.23*	*0.25*	*0.26*	
High GWP	10.72	11.27	11.87	12.57	13.32	13.90	14.26	14.27	14.44	14.76	15.66	
Ozone Depleting Substance (ODS) Substitutes	*8.58*	*9.32*	*10.09*	*10.84*	*11.59*	*12.08*	*12.40*	*12.48*	*12.57*	*12.90*	*13.84*	
Electricity Grid SF6 Losses [3]	*1.17*	*1.15*	*1.07*	*1.05*	*1.04*	*1.03*	*0.99*	*0.93*	*0.95*	*0.91*	*0.85*	
Semiconductor Manufacturing [2]	*0.97*	*0.80*	*0.71*	*0.68*	*0.68*	*0.78*	*0.87*	*0.86*	*0.92*	*0.95*	*0.96*	
Agriculture [4]	29.75	29.93	33.07	31.48	33.24	33.48	34.59	33.44	34.34	32.81	32.45	
Livestock	*16.50*	*17.17*	*17.70*	*16.36*	*17.69*	*18.33*	*18.69*	*19.93*	*20.23*	*20.05*	*19.60*	
Enteric Fermentation (Digestive Process)	8.32	8.48	8.72	8.40	8.76	9.05	9.14	9.70	9.67	9.51	9.35	
Manure Management	8.18	8.69	8.98	7.96	8.94	9.28	9.55	10.23	10.56	10.53	10.25	
Crop Growing & Harvesting	*9.43*	*8.93*	*10.98*	*10.75*	*11.02*	*10.52*	*10.57*	*9.70*	*10.19*	*10.11*	*10.04*	
Fertilizers	7.99	7.69	9.59	9.37	9.48	9.08	8.96	8.27	8.81	8.72	8.66	
Soil Preparation and Disturbances	1.36	1.18	1.34	1.31	1.47	1.37	1.55	1.36	1.31	1.32	1.30	
Crop Residue Burning	0.08	0.06	0.06	0.06	0.06	0.07	0.06	0.07	0.07	0.07	0.07	
General Fuel Use	*3.82*	*3.83*	*4.39*	*4.38*	*4.53*	*4.63*	*5.33*	*3.80*	*3.92*	*2.65*	*2.82*	
Diesel	2.52	2.69	3.04	3.11	3.17	3.41	3.87	2.68	3.00	1.78	1.99	
Natural Gas	0.98	0.75	0.94	0.85	0.82	0.70	0.88	0.79	0.75	0.69	0.65	
Gasoline	0.31	0.38	0.41	0.41	0.52	0.52	0.57	0.33	0.17	0.17	0.18	
Other Fuels	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	
Forestry	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	
Wildfire (CH4 & N2O Emissions)	*0.19*	*0.19*	*0.19*	*0.19*	*0.19*	*0.19*	*0.19*	*0.19*	*0.19*	*0.19*	*0.19*	
Total Gross Emissions	*465.25*	*483.12*	*482.87*	*480.51*	*492.60*	*486.68*	*484.43*	*490.89*	*491.92*	*457.83*	*451.60*	
Forested Lands Net CO2 [5]	*-4.48*	*-4.29*	*-4.16*	*-4.17*	*-4.17*	*-4.03*	*-3.88*	*-3.95*	*-3.85*	*-3.81*		
CO2 Absorbed by Forested Lands	-14.15	-14.14	-14.13	-14.12	-14.11	-14.09	-14.08	-14.07	-14.06	-14.05		
CO2 Emitted by Forested Lands	3.24	3.24	3.23	3.23	3.23	3.23	3.22	3.22	3.22	3.22		see [5]
CO2 Emissions from Wood Products	6.43	6.61	6.74	6.72	6.71	6.83	6.98	6.90	6.99	7.02		
Total Net Emissions	*460.77*	*478.83*	*478.71*	*476.35*	*488.43*	*482.65*	*480.55*	*486.94*	*488.06*	*454.01*		

[1] Reflects emissions from combustion of natural gas, diesel, and lease fuel plus fugitive emissions
[2] These categories are listed in the Industrial sector of ARB's GHG Emission Inventory sectors
[3] This category is listed in the Electric Power sector of ARB's GHG Emission Inventory sectors
[4] Reflects use of updated USEPA models for determining emissions from livestock and fertilizers
[5] Revised methodology under development

Source: California Air Resources Board website http://www.arb.ca.gov

Table 5.11: California Greenhouse Gas Emissions Forecast (2008 – 2020)

Last Updated: 10/28/2010 — *Million tonnes of CO2 equivalent*

Category	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Grand Total	**474.64**	**457.65**	**462.04**	**463.23**	**470.37**	**480.40**	**487.35**	**492.01**	**494.66**	**497.88**	**500.76**	**503.76**	**506.78**
Total (Capped)	**403.15**	**387.60**	**389.18**	**387.94**	**392.58**	**400.14**	**404.56**	**406.71**	**406.89**	**407.61**	**407.99**	**408.41**	**408.84**
Total Narrow Scope (Capped)	***174.54***	***168.54***	***166.26***	***165.84***	***165.85***	***167.26***	***168.07***	***168.84***	***169.63***	***170.40***	***171.10***	***171.82***	***172.57***
Electricity Generation (Capped)	***43.82***	***40.85***	***39.47***	***38.89***	***38.65***	***39.70***	***40.44***	***41.18***	***41.93***	***42.67***	***43.37***	***44.08***	***44.82***
Electricity Generation (In-State)	43.82	40.85	39.47	38.89	38.65	39.70	40.44	41.18	41.93	42.67	43.37	44.08	44.82
Imported Electricity (Capped)	***55.03***	***53.53***	***53.53***	***53.53***	***53.53***	***53.53***	***53.53***	***53.53***	***53.53***	***53.53***	***53.53***	***53.53***	***53.53***
AZ	6.62	5.90	5.90	5.90	5.90	5.90	5.90	5.90	5.90	5.90	5.90	5.90	5.90
CO	3.20	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85
NM	4.70	4.67	4.67	4.67	4.67	4.67	4.67	4.67	4.67	4.67	4.67	4.67	4.67
NV	3.18	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03	3.03
UT	13.57	13.52	13.52	13.52	13.52	13.52	13.52	13.52	13.52	13.52	13.52	13.52	13.52
ID	0.50	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
MT	1.29	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
OR	3.19	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01
WA	4.74	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58
Tribal	8.80	9.07	9.07	9.07	9.07	9.07	9.07	9.07	9.07	9.07	9.07	9.07	9.07
MEX	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55
CAN	2.69	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61	2.61
Industrial (Capped)	***75.69***	***74.15***	***73.26***	***73.42***	***73.66***	***74.03***	***74.10***	***74.12***	***74.17***	***74.20***	***74.20***	***74.21***	***74.21***
Cement Plants	8.64	8.64	8.64	8.64	8.64	8.64	8.64	8.63	8.63	8.63	8.63	8.63	8.63
Cogeneration Facilities	11.13	10.37	10.02	9.87	9.81	10.08	10.27	10.46	10.65	10.83	11.01	11.19	11.38
Hydrogen Plants	2.22	2.20	2.18	2.18	2.18	2.18	2.18	2.17	2.17	2.17	2.17	2.17	2.17
Petroleum Refining	34.58	34.24	33.89	33.89	33.87	33.85	33.82	33.80	33.77	33.75	33.72	33.69	33.66
Other	0.21	0.20	0.20	0.21	0.22	0.23	0.23	0.23	0.24	0.24	0.24	0.25	0.25
General Stationary Combustion	18.91	18.50	18.32	18.63	18.94	19.06	18.97	18.83	18.70	18.57	18.43	18.28	18.13
Added Broad Scope Fuels (Capped)	***228.61***	***219.07***	***222.92***	***222.10***	***226.73***	***232.87***	***236.49***	***237.87***	***237.26***	***237.21***	***236.88***	***236.59***	***236.28***
Gasoline	130.62	128.83	131.88	130.56	133.43	137.41	139.50	138.98	137.51	135.64	133.47	131.48	129.33
Distillate	38.59	36.57	37.95	37.89	38.88	40.07	40.99	42.28	42.48	43.63	44.88	45.99	47.06
Propane	4.29	3.44	3.45	3.46	3.45	3.45	3.45	3.45	3.45	3.45	3.44	3.44	3.44
Natural Gas	55.11	50.23	49.65	50.20	50.97	51.94	52.55	53.16	53.82	54.49	55.09	55.69	56.44
Ethanol	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total (Uncapped)	**71.49**	**70.05**	**72.86**	**75.29**	**77.80**	**80.26**	**82.79**	**85.30**	**87.77**	**90.28**	**92.78**	**95.35**	**97.94**
Electricity Generation & Industrial	25.83	21.22	21.84	22.06	22.24	22.29	22.44	22.59	22.74	22.91	23.10	23.29	23.50
Transportation	5.58	5.27	5.54	5.85	6.02	6.18	6.37	6.61	6.83	7.07	7.28	7.54	7.73
Ag & Forestry	20.44	21.15	21.20	21.41	21.71	22.06	22.43	22.82	23.23	23.67	24.11	24.57	25.11
Commercial	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Residential	0.25	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
High GWP Gases	13.89	16.95	18.69	20.44	22.18	23.92	25.66	27.40	29.15	30.89	32.63	34.37	36.11
Ethanol	5.46	5.15	5.27	5.22	5.34	5.50	5.58	5.56	5.50	5.42	5.34	5.26	5.17

Notes:

The emission factor used for unspecified imported electricity in this forecast is WCI's preliminary factor of 959.7 lbs/MWh. This factor was recently updated and may be obtained from the Western Climate Initiative (WCI) website: http://www.westernclimateinitiative.org/component/remository/Electricity-Team-Documents/Default-Emission-Factor-Calculators/

Because of the difference in emission factors for unspecified imported electricity, the emissions total for 2008 in this forecast differs from the 2008 emissions total in the statewide GHG inventory: http://www.arb.ca.gov/cc/inventory/data/data.htm

Source: California Air Resources Board website http://www.arb.ca.gov

Each major source category is further disaggregated into minor source categories.

As shown in **Table 5.9**, Transportation and Electric Power are the two larger major source categories of GHG emissions in California. Industrial and Commercial and Residential activities are relatively smaller sources of GHG emissions.

Table 5.10 presents forecasts of GHG emissions expected to be generated in California during the years 2008 through 2020.

5.6.2. Regulatory Setting

The following describes Federal, State, and local regulation of GHG emissions.

5.6.3. Federal Regulations

The following describes Federal regulations related to global climate change and GHG emissions.

Supreme Court Ruling. The U.S. Environmental Protection Agency (EPA) is the Federal agency responsible for implementing the Federal Clean Air Act (FCAA). The U.S. Supreme Court ruled in its decision in *Massachusetts et al. v. Environmental Protection Agency et al*. (2007) 549 U.S. 05-1120, that CO_2 is an air pollutant as defined under the FCAA, and that U.S. EPA has the authority to regulate emissions of GHG.

In response to the mounting issue of climate change, U.S. EPA has taken actions to regulate, monitor, and potentially reduce GHG emissions.

Mandatory Greenhouse Gas Reporting Rule. On September 22, 2009, U.S. EPA issued a final rule for mandatory reporting of GHG from large GHG emissions sources in the United States. In general, this federal reporting requirement will provide U.S. EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons or more of CO_2 per year. This publicly available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost-effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial GHG, along with vehicle and engine manufacturers, will report at the corporate level. An estimated 85% of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

Proposed Endangerment and Cause or Contribute Findings for GHG under the Clean Air Act. On April 23, 2009, U.S. EPA published their Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the FCCA (Endangerment Finding) in the Federal Register. The Endangerment Finding is based on section 202(a) of the FCAA, which states that the U.S. EPA Administrator should regulate and develop standards for “emission[s] of air pollution from any class of classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.” The proposed rule addresses section 202(a) in two distinct findings. The first addresses whether or not the concentrations of the six key GHG (i.e., CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations. The second addresses whether or not the combined emissions of GHG from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHG and to the threat of climate change.

The Administrator proposed the finding that atmospheric concentrations of GHG endanger the public health and welfare within the meaning of section 202(a) of the FCCA. The evidence supporting this finding consists of human activity resulting in "high atmospheric levels" of GHG emissions, which are very likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wild fires, droughts, sea level rise, higher intensity storms) are a threat to the public health and welfare. Therefore, GHG were found to endanger the public health and welfare of current and future generations.

The Administrator also proposed the finding that GHG emissions from new motor vehicles and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. The proposed finding cites that in 2006, motor vehicles were the second largest contributor to domestic GHG emissions (24 percent of total) behind electricity generation. Furthermore, in 2005, the U.S. was responsible for 18 percent of global GHG emissions. Therefore, GHG emissions from motor vehicles and motor vehicle engines were found to contribute to air pollution that endangers public health and welfare.

5.6.4. State Greenhouse Gas Regulations.

The following describes State regulations related to global climate change and GHG emissions.

Assembly Bill 1493 (2002). AB 1493 (Stats. 2002, ch. 200; Pavley I) required CARB to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by the ARB to be vehicles whose primary use is noncommercial personal transportation in the state." To meet the requirements of AB 1493, CARB approved amendments to the California Code of Regulations adding GHG emission standards to California's existing motor vehicle emission standards in 2004. Amendments to Title 13 of the California Code of Regulations, sections 1900 and 1961, and adoption of section 1961.1, require automobile manufacturers to meet fleet average GHG emission limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes beginning with the 2009 model year. Emission limits are further reduced each model year through 2016. For passenger cars and light-duty trucks 3,750 pounds or less loaded vehicle weight (LVW), the 2016 GHG emission limits are approximately 37 percent lower than the during the first year of the regulations in 2009. For medium-duty passenger vehicles and light-duty trucks 3,751 LVW to 8,500 pounds gross vehicle weight (GVW), GHG emissions are reduced approximately 24 percent between 2009 and 2016.

In 2012, CARB approved an update to AB 1493, creating new vehicle emission controls standards for model years 2017 to 2025. The update takes a series of measures and combines them into one policy called Advanced Clean Cars (Pavley II). By 2025, the new standards call for new automobiles to emit 34 percent fewer GHG emissions and 75 percent fewer smog-forming emissions, compared to projected vehicle emission levels in 2016 under the previous rule.

Assembly Bill 32 (2006), California Global Warming Solutions Act. In September 2006, then-Governor Schwarzenegger signed AB 32 (Chapter 488, Statutes of 2006), the California Global Warming Solutions Act of 2006, which enacted sections 38500–38599 of the Health and Safety Code. AB 32 requires the reduction of statewide GHG emissions to 1990 levels by 2020. This

equates to an approximate 15 percent reduction compared to existing statewide GHG emission levels or a 30 percent reduction from projected 2020 "business as usual" emission levels. The required reduction will be accomplished through an enforceable statewide cap on GHG emissions that began in 2012.

To effectively implement the statewide cap on GHG emissions, AB 32 directs ARB to develop and implement regulations that reduce statewide GHG emissions generated by stationary sources. Specific actions required of ARB under AB 32 include adoption of a quantified cap on GHG emissions that represent 1990 emissions levels along with disclosing how the cap was quantified, institution of a schedule to meet the emissions cap, and development of tracking, reporting, and enforcement mechanisms to ensure that the state achieves the reductions in GHG emissions needed to meet the cap.

In addition, AB 32 states that if any regulations established under AB 1493 (2002) cannot be implemented, then ARB is required to develop additional, new regulations to control GHG emissions from vehicles as part of AB 32.

AB 32 Climate Change Scoping Plan. In December 2008, ARB adopted its Climate Change Scoping Plan (California Air Resources Board, 2008b), which contains the main strategies California will implement to achieve reduction of approximately 169 million metric tons (MMT) of CO_2e or approximately 30 percent from the state's projected 2020 emission level of 596 MMT of CO_2e under a business-as-usual scenario (this is a reduction of 42 MMT CO_2e, or almost 10 percent from 2002-2004 average emissions). The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO_2e);
- the Low-Carbon Fuel Standard (15.0 MMT CO_2e);
- energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO_2e); and
- a renewable portfolio standard for electricity production (21.3 MMT CO_2e).

ARB has not yet determined what amount of GHG reductions it recommends from local government operations; however, the Scoping Plan does state that land use planning and urban growth decisions will play an important role in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions (meanwhile, ARB is also developing an additional protocol for community emissions). ARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. The Scoping Plan states that the ultimate GHG reduction assignment to local government operations is to be determined. With regard to land use planning, the Scoping Plan expects approximately 5.0 MMT CO_2e will be achieved associated with implementation of SB 375, which is discussed further below.

Senate Bills 1078 and 107 and Executive Order S-14-08. SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community

choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008 then-Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Energy Standard to 33 percent renewable power by 2020.

Senate Bill 1368 (2006). SB 1368 is the companion bill of AB 32 and was signed by then-Governor Schwarzenegger in September 2006. SB 1368 requires the California Public Utilities Commission (PUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. The California Energy Commission (CEC) must establish a similar standard for local publicly-owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the PUC and CEC.

Senate Bill 97 (2007). SB 97, signed by then-Governor Schwarzenegger in August 2007 (Chapter 185, Statutes of 2007; Pub. Res. Code, §§ 21083.05 and 21097), acknowledges climate change is a prominent environmental issue that requires analysis under CEQA. This bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Resources Agency (CRA) by July 1, 2009, guidelines for mitigating GHG emissions or the effects of GHG emissions, as required by CEQA. The CRA was required to certify and adopt these guidelines by January 1, 2010.

This bill also removes, both retroactively and prospectively, as legitimate causes of action in litigation, any claim of inadequate CEQA analysis of effects of GHG emissions associated with environmental review for projects funded by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006 (Proposition 1B) or the Disaster Preparedness and Flood Protection Bond Act of 2006 (Proposition 1E). This provision will be repealed by provision of law on January 1, 2010, and at that time, any unapproved projects will no longer enjoy protection against litigation claims based on failure to adequately address issues related to GHG emissions.

Senate Bill 375 (2008). SB 375, signed by then-Governor Schwarzenegger in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. As part of the alignment, SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS), which prescribes land use allocation in that MPO's Regional Transportation Plan (RTP). The ARB, in consultation with MPOs, is required to provide each affected region with reduction targets for GHG emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years, but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. The ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned GHG emission reduction targets. If MPOs do not meet the GHG reduction targets, transportation projects located in the MPO boundaries would not be eligible for funding programmed after January 1, 2012.

This bill also extends the minimum time period for the Regional Housing Needs Allocation (RNHA) cycle from five years to eight years for local governments located in an MPO that meets certain requirements. City or County land use policies (e.g., General Plans) are not required to be consistent with the RTP including associated SCSs or APSs. Projects consistent with an

approved SCS or APS and categorized as “transit priority projects” would receive incentives under new provisions of CEQA.

Executive Order S-3-05 (2005). Then-Governor Schwarzenegger signed Executive Order S-3-05 on June 1, 2005, which proclaimed California is vulnerable to the impacts of climate change. The executive order declared increased temperatures could reduce snowpack in the Sierra Nevada Mountains, further exacerbate California’s air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the executive order established targets for total GHG emissions, which include reducing GHG emissions to the 2000 level by 2010, to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The executive order also directed the secretary of the California Environmental Protection Agency to coordinate a multiagency effort to reduce GHG emissions to the target levels. The secretary will submit biannual reports to the governor and legislature describing progress made toward reaching the emission targets; impacts of global warming on California’s resources; and mitigation and adaptation plans to combat impacts of global warming.

To comply with the executive order, the Secretary of the California Environmental Protection Agency created the California Climate Action Team, which is made up of members from various state agencies and commissions. The California Climate Action Team released its first report in March 2006, of which proposed achieving the GHG emissions targets by building on voluntary actions of California businesses and actions by local governments and communities along with continued implementation of state incentive and regulatory programs.

Executive Order S-13-08. Then-Governor Schwarzenegger signed Executive Order S-13-08 on November 14, 2008, which directs California to develop methods for adapting to climate change through preparation of a statewide plan. The executive order directs OPR, in cooperation with the CRA, to provide land use planning guidance related to sea level rise and other climate change impacts by May 30, 2009. The order also directs the CRA to develop a state Climate Adaptation Strategy by June 30, 2009 and to convene an independent panel to complete the first California Sea Level Rise Assessment Report. The assessment report is required to be completed by December 1, 2010, and required to include the following four items:

1. project the relative sea level rise specific to California by taking into account issues such as coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates;

2. identify the range of uncertainty in selected sea level rise projections;

3. synthesize existing information on projected sea level rise impacts to state infrastructure (e.g., roads, public facilities, beaches), natural areas, and coastal and marine ecosystems; and

4. discuss future research needs relating to sea level rise in California.

Executive Order S-1-07. Then-Governor Schwarzenegger signed Executive Order S-1-07 in 2007, which proclaimed the transportation sector as the main source of GHG emissions in California. The executive order proclaims the transportation sector accounts for over 40 percent of statewide GHG emissions. The executive order also establishes a goal to reduce the carbon intensity of transportation fuels sold in California by a minimum of 10 percent by 2020.

In particular, the executive order established a Low-Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the CEC, the CARB, the

University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis, supporting development of the protocols, was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by CEC on December 24, 2007) and submitted to CARB for consideration as an "early action" item under AB 32. The CARB adopted the LCFS on April 23, 2009.

Executive Order B-30-15. On April 29, 2015, Governor Brown signed Executive Order B-30-15. The executive order:

- establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030,
- directs the CARB to update the Climate Change Scoping Plan to express the 2030 target,
- directs the California Natural Resources Agency to update the state's climate adaptation strategy every three years,
- directs state agencies to take climate change into account in their planning and investment decisions,
- directs the state's Five Year Infrastructure Plan to take current and future climate change impacts into account in all infrastructure projects, and
- directs the Governor's Office of Planning and Research to establish a technical advisory group to help state agencies incorporate climate change impacts into planning and investment decisions.

5.6.5. Local Greenhouse Gas Regulations

The following describes local regulations related to global climate change and GHG emissions.

Bay Area Air Quality Management District Climate Protection Program. The BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the SFBAAB. The climate protection program includes measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative sources of energy all of which assist in reducing GHG emissions and in reducing air pollutants that affect the health of residents. BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

5.6.6. Napa County Climate Action Plan

The Napa County Department of Planning, Building, and Environmental Services (PBES) has been working to develop a Climate Action Plan for the County for several years. The Climate Action Plan is intended to quantify and reduce GHG emissions in unincorporated Napa County, and its adoption would implement an "action item" from the County's 2008 General Plan Update.

A proposed Climate Action Plan was recommended for adoption by the Planning Commission in early 2012 and later considered by the Board of Supervisors, who sent the plan back to staff for modifications. Among other things, the Board requested that the plan be revised to better address transportation emissions, and to "credit" past accomplishments and voluntary efforts. The Board also

requested that the Planning Commission consider “best practices” when reviewing projects until a revised Climate Action Plan can be prepared and adopted.

The Planning Commission’s current list of best practices was developed with stakeholder input during the spring of 2013. In the summer of 2013, PBES began working again with the community to develop and shape a revised Climate Action Plan.

The revised draft Climate Action Plan (County of Napa 2011) contains description of current and forecasted GHG emissions in Napa County. The GHG emissions are presented below in **Table 5.11**.

Table 5.12. Napa County GHG Emissions in 2005 and Project Emissions in 2020

	Year 2005		**Year 2020**	
Sector	**Metric Tons CO_2e**	**Percent of Total**	**Metric Tons CO_2e**	**Percent of Total**
Building Energy Use (Residential)	48,220	10.9%	55,940	10.8%
Building Energy Use (Commercial/Industrial)	95,320	21.5%	111,060	21.5%
Waste	9,240	2.1%	10,630	2.1%
Wastewater (Residential)	5,630	1.3%	6,480	1.3%
Wastewater (Commercial/Industrial)	4,270	1.0%	4,730	0.9%
On-Road Vehicles	191,270	43.1%	230,100	44.5%
Off-Road Vehicles (Lawn and Garden)	750	0.2%	870	0.2%
Off-Road Vehicles (Construction/Industrial)	15,870	3.6%	18,830	3.6%
Agriculture				
Vehicles/Equipment	34,460		41,580	
Enteric Fermentation	8,130		4,410	
Manure Management	2,310		1,250	
Fertilizer Use	1,550		1,720	
Lime Use	350		440	
Agriculture Total	46,800	10.5%	49,400	9.6%
Land Use Change				
Loss in carbon stock (RCI + Vineyard development)	27,130		29,790	
Gain in carbon stock (Vineyard development)	-1,020		-1,340	

Loss in annual sequestration capacity (RCI and Vineyard development)	190		180	
Land Use Change Total	26,300	5.9%	28,630	5.5%
TOTAL EMISSIONS	**443,670**	**100.0%**	**516,670**	**100.0%**

Source: Napa County Revised Draft Climate Action Plan

5.6.7. Sonoma County Climate Action Plan

In 2005, nine cities and the County of Sonoma pledged to reduce GHG emissions to 25 percent below 1990 levels by 2015. The Regional Climate Protection Authority (RCPA) was created in 2009 to help each jurisdiction reach its goal. The RCPA includes representatives from each of the nine cities in Sonoma County and the Board of Supervisors.

Climate Action 2020 is a collaborative effort led by the RCPA and including all nine cities and the County of Sonoma and several partner entities to take further actions to reduce GHG emissions community-wide and respond to the threats of climate change. RCPA will work with each jurisdiction to develop a Community Climate Action Plan that will provide a comprehensive assessment of GHG emission sources as well possible measures that jurisdictions can take to reduce GHG emissions and/or adapt to climate change.

5.7. Impact Analysis Methods and Thresholds of Significance

Impact Analysis Methods. Two software analysis tools were applied in estimating GHG emissions for this EIR: the Road Construction Emissions Model and the CalEEMod model.

As specified in Appendix B of the BAAQMD document *California Environmental Quality Act Air Quality Guidelines* (Bay Area Air Quality Management District, 2012)[32],

> "For proposed projects that are linear in nature (e.g., road or levee construction, pipeline installation, transmission lines), use the most current version of Sacramento Metropolitan Air Quality Management District's (SMAQMD) Road Construction Emissions Model (RoadMod) to quantify construction-related criteria air pollutants and precursors. . . Use RoadMod in accordance with the user instructions and default assumptions unless project-specific information is available. The default assumptions are applicable to projects located within the SFBAAB."

The amount of project-related GHG emissions due to construction activities for linear features of BMPs was calculated using Version 7.1.5 of the Road Construction Emissions Model.

The CalEEMod emissions model (http://www.caleemod.com/) is most commonly used to estimate emissions associated with a wide range of land use development projects, including industrial and recreational facilities. Aspects of the CalEEMod model estimate emissions associated with construction and operation of industrial and recreational facilities. These aspects of the model were used in this EIR to estimate emissions associated with construction of non-linear BMP features and operation of the General Permit Project.

[32] Water Board staff finds that thresholds of significance for determining air quality impacts as developed by the BAAQMD (2012) to be technically sound based on unanimous adoption of these guidelines by the Air District in 2012.

For analysis of construction-related emissions generated by non-linear BMP features (e.g., detention basins, sedimentation basins, constructed wetlands), construction activity technical assumptions (e.g., construction equipment and schedule) were based on previous analysis of the Alamo Creek Detention Basin in Solano County (Federal Emergency Management Agency 2011). The assumptions used in this project were deemed reasonable and prudent for this programmatic analysis.

Output reports from the Road Construction Emissions Model and the CalEEMod emissions model are available upon request (Shijo, unpublished data, 2014).

Thresholds of Significance. Section 15064.4(a) of the CEQA Guidelines states:

> "The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project."

Section 15064.4(b) of the CEQA Guidelines states,

> "A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:
>
> (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
>
> (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project."

Neither section 15064.4(a) nor section 15064.4(b) of the CEQA Guidelines make a distinction between construction-related and operational GHG emissions.

As previously noted in section 5.4 of this EIR, *Impact Analysis Methods*, thresholds of significance from the 1999 BAAQMD CEQA Guidelines (Bay Area Air Quality Management District, 1999) are applied to criteria pollutant emissions. The use of the 1999 thresholds is consistent with the approach suggested by the air district (Bay Area Air Quality Management District, 2014). While the 1999 BAAQMD CEQA Guidelines presented recommended thresholds of significance for criteria pollutant emissions, the 1999 guidelines did not present recommended thresholds for GHG emissions. Therefore, the RWQCB reviewed and considered thresholds of significance for GHG emissions adopted by the BAAQMD in 2010. The RWQCB independently reviewed BAAQMD studies supporting the GHG thresholds and find they are supported by substantial evidence.

The BAAQMD does not specify a significance threshold for construction-related GHG emissions. For operational GHG emissions, the BAAQMD provides three alternative thresholds. The following three alternative significance thresholds are provided by the BAAQMD for operational GHG emissions:

- compliance with a qualified Greenhouse Gas Reduction Strategy,
- 1,100 metric tons (MT) of CO_2e per year, or
- 4.6 MT of CO_2e per service population per year.

While the BAAQMD significance thresholds for GHG emissions apply to operational emissions, rather than construction-related emissions, the BAAQMD GHG thresholds are applied in this EIR to both project-related construction emissions and operational emissions. This approach is applied to provide a quantitative basis for determining the significance of project-related GHG emissions. ***Applying this***

approach to construction-related emissions is considered conservatively strict (erring on the side of over- as opposed to under-estimation of potential impacts) because the BAAQMD operational significance thresholds for GHG emissions are intended to apply to annual emissions from operational sources, which would repeatedly occur every year for the lifetime of a project. Conversely, the construction-related emissions would only be generated once, during the finite construction period.

The first and third alternative thresholds listed above can be applied to GHG emissions generated by typical urban and suburban land use development projects (e.g., residential housing, retail commercial, and office uses). However, the first and third alternative thresholds have only limited applicability to infrastructure projects, industrial facilities, and agricultural land uses such as the General Permit. As a result, the second alternative threshold listed above is applied in this EIR. If implementation of General Permit would generate more than 1,100 MT of CO_2e per year, the project is considered to have a significant impact on GHG emissions.

The Road Construction Emissions Model was used to estimate GHG emissions that would be generated by construction of linear feature BMPs. The model was used to determine the largest linear feature BMP that would result in less than 1,100 MT of CO_2e per year. Linear feature BMPs that would result in construction areas less than 1.1 miles in length and an average of 36 feet in width would result in construction-related GHG emissions less than 1,100 MT of CO_2e per year. Therefore, based on the BAAQMD GHG emissions significance threshold, for this EIR, linear feature BMPs less than 1.1 miles in length and an average of 36 feet in width are considered to have a less than significant impact on construction-related GHG emissions.

The CalEEMod emissions model was used to estimate GHG emissions that would be generated by construction of non-linear feature BMPs, such as detention basins. The model was used to determine the largest non-linear feature BMP that would result in less than 1,100 MT of CO_2e per year. Non-linear feature BMPs that would result in construction areas less than 35 acres in size would result construction-related GHG emissions less than 1,100 MT of CO_2e per year. Therefore, based on the BAAQMD GHG emissions significance threshold, for this EIR, non-linear feature BMPs less than 35 acres in size are considered to have a less than significant impact on construction-related GHG emissions.

The CalEEMod emissions model was also used to estimate long-term operational GHG emissions that would be generated by vehicle trips. The model was used to determine the largest number of operational vehicle trips that would result in less than 1,100 MT of CO_2e per year. The generation of less than 735 vehicle trips per day would result in long-term operational GHG emissions less than 1,100 MT of CO_2e per year. Therefore, based on the BAAQMD GHG emissions significance threshold, for this EIR, BMPs that would generate fewer than 735 long-term operational vehicle trips per day are considered to have a less than significant impact on long-term operational GHG emissions.

Finally, it is also important to note that significant beneficial reductions in GHG emissions (carbon sequestration) that would occur as a result of BMP implementation including increases in the land area under no-till cover crops, and significant reductions in road and vineyard related erosion processes have not been quantified or considered in the analysis of the impacts of the project on GHG emissions.

5.7.1. Impacts and Mitigation Measures

The following description of GHG emission impacts and mitigation measures is common to both the Napa River and the Sonoma Creek watersheds.

The impacts and mitigation measures are divided into short-term construction-related and long-term operational impacts and mitigation measures. Short-term construction-related impacts and mitigation measures are also divided into BMPs that would result in the construction of linear features and those that would result in the non-linear features. This results in the following three categories of impacts and mitigation measures:

- short-term construction-related GHG emissions from linear feature BMPs,
- short-term construction-related GHG emissions from non-linear feature BMPs, and
- long-term operational GHG emissions from all BMPs.

The following BMPs (see Table 2-3) are those that would result in the construction of linear features:

- BMP-3 Vegetated filter strips (install and maintain)
- BMP-6 Diversion ditch (construction)
- BMP-7 Engineered subsurface drainage pipes (install)
- BMP-8 Engineered subsurface drainage pipes (remove)
- BMP- 9 Level spreader
- BMP-14 Water Bar (construction)
- BMP-15 Unstable road fill or side-cast removal
- BMP-16 Road reshaping
- BMP-17 Ditch relief culvert (install)
- BMP-18 Critical dips (construction)
- BMP-19 Road crossing (repair or replacement)
- BMP-20 Road decommissioning
- BMP-21 Road storm-proofing (construction of new road)

The following BMPs are those that would result in the construction of non-linear features:

- BMP-1 Cover crop (plant and maintain)
- BMP-2 Compost (application)
- BMP-4 Conservation tillage
- BMP-5 Grassed waterway
- BMP-10 Stormwater detention basin and/or constructed wetlands
- BMP–11 Soil bioengineering techniques (no rip rap)
- BMP-12 Soil bioengineering techniques (may involve rip rap)
- BMP-13 Single post trash rack (installation)
- BMP-25 Concrete pad and earthen berm (construction)
- BMP-26 Pesticide storage facility (construction)

Impact 5.6: Generation of Short-Term Construction-Related GHG Emissions from Linear BMPs

Implementation of BMPs that would result in the construction of linear features, such as roads, would generate short-term GHG emissions. The magnitude of construction activities would vary widely between types of BMPs and, for each type of BMP, would vary widely between individual sites, therefore the EIR adopted a conservative approach towards impact analysis, accounting for this variation. Typical earth-moving equipment that may be necessary for construction include: graders, scrapers, backhoes, front-end loaders, generators, water trucks and dump trucks. Construction activities would include site preparation, materials transport, grading, trenching, and placement of landscaping and erosion control features.

As noted above, section 15064.4(a) of the CEQA Guidelines, CEQA lead agencies should make a good faith effort to estimate GHG emissions resulting from a project. Because the magnitude of construction activities would vary widely between types of BMPs and individual sites, quantification of GHG emissions for the General Permit is not possible. However, it is possible to estimate the approximate size of a linear feature BMP that would result in a significant impact.

Unpaved road treatment (e.g., retrofit, relocation, decommissioning, etc.), of the linear BMPs listed, constitutes the largest linear set of construction actions to be undertaken to comply with the General Permit in the Project area. Up to 800 miles of unpaved roads occur on hillslope Vineyard Properties that could be enrolled in the General Permit. Based on review of existing road erosion surveys conducted in the Project area under the baseline, an estimated 50 percent of the length of these unpaved roads are hydrologically connected (Water Board, 2009a, p.26). Therefore, to achieve the General Permit performance standard of ≤ 25 percent of the length of unpaved roads being hydrologically connected, about ¼ of the lengths of unpaved roads would need to be treated, which equals as many as 200 miles of roads that would be treated over an approximately 10-year implementation period.

As noted above in the Thresholds of Significance section, the Road Construction Emissions Model was used in this EIR to estimate GHG emissions that would be generated by construction of linear feature BMPs. The modeling effort concluded that linear feature BMPs that would result in construction areas less than 1.1 miles in length, and an average of 36 feet in width, would result in construction-related GHG emissions less than 1,100 MT of CO_2e per year. Therefore, based on the BAAQMD GHG emissions significance threshold, linear feature BMPs less than 1.1 miles in length and an average of 36 feet in width would result in a less than significant impact on construction-related GHG emissions and no mitigation measures would be required.

However, as described above, the amount of road length/width expected to be treated to control erosion, is estimated at 200 miles over a 10 year General Permit implementation period. This translates to an estimated 20 miles of roads to be treated per year. The estimate exceeds the modeled GHG emissions significance threshold (i.e., construction areas less than 1.1 miles in length or an average of 36 feet in width) and could result in GHG emissions greater than 1,100 MT of CO_2e per year. This is considered a significant impact. Because the amount of GHG emissions generated by an individual BMP at an individual site cannot be determined, the specific types and magnitude of mitigation measures needed to reduce the impact to a less than significant level cannot be determined. However, the following types of mitigation measures will reduce the amount of GHG emissions, and can reduce the impact to a less than significant level.

Mitigation Measure 5.6

Mitigation Measure GHG-1, described below, can reduce the amount of construction-related GHG emissions.

- Require Use of Newer Construction Equipment. Construction equipment with newer engine models is subject to stricter emissions standards, and would generate less GHG emissions. The stricter emissions standards are generally based on criteria pollutant emissions, rather than GHG emissions. However, some of control measures to reduce criteria pollutant emissions (e.g., increasing the energy efficient of engines) also reduce GHG emissions.
- Require Use of Equipment Powered by Electricity. Some types of equipment can be powered by either diesel fuel, electricity, or a hybrid. The degree to which use of electricity reduces GHG emissions depends on the source of the electricity. Using electricity generated from fossil fuels would not necessarily reduce GHG emissions. Conversely, using electricity generated from renewable sources (e.g., hydroelectric, geothermal, wind, or solar) would reduce GHG emissions. Overall, use of equipment powered by electricity or a hybrid would involve a mix of sources and generally generate less GHG emissions, compared to use of only diesel fuel.
- Require Use of Equipment Powered by Alternative Fuels. Some types of equipment can be powered by alternative fuels (i.e., not diesel fuel). There are many different types of alternative fuels. Use of some alternative fuels would generally generate less GHG emissions. For example, the CARB has found that compressed natural gas generates lower amounts of GHG emissions for the same amount of fuel energy (California Air Resources Board 2014).

Impact Significance after mitigation

Although GHG-1 would reduce potential impact related to GHG emissions to less than significant levels, the Water Board would not have oversight of the implementation of proposed mitigation measures described above. The ability to require such measures is within the purview of jurisdictions with local land use approval and/or permitting authority. In all cases where compliance actions at an individual Vineyard Property meet the CEQA definition of a “Project,” the local land-use authority would issue a CEQA document. In some of those cases, local land use agencies have determined that a categorical exemption applies to the action (e.g. construction of erosion control BMPs within the footprint of existing unpaved roads) or has a streamlined CEQA process in place (e.g. VESCO).

Therefore, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce significant impacts. Even with mitigation, GHG emissions may exceed threshold requirements for the local air districts. Consequently, the EIR takes a conservative approach in its post-mitigation significance conclusion and discloses for CEQA compliance purposes, that **GHG emission impacts could be significant and unavoidable.**

Impact 5.7: Generation of Short-Term Construction-Related GHG Emissions from Non-Linear Feature BMPs

Implementation of various types of non-linear BMPs would require construction activities that would generate air emissions. The magnitude of construction activities would vary widely between types of BMPs and, for each type of BMP, would vary widely between individual sites. Construction activities would include site preparation, grading, trenching, and placement of landscaping and erosion control features. The construction activities would result in the generation of GHG emissions.

As noted above, section 15064.4(a) of the CEQA Guidelines, CEQA lead agencies should make a good faith effort to estimate GHG emissions resulting from a project. Because the magnitude of construction activities would vary widely between types of BMPs and individual sites, quantification of GHG emissions for the General Permit Project is not possible. However, it is possible to estimate the approximate size of a non-linear feature BMP that would result in a significant impact.

As noted above in the Thresholds of Significance section, the CalEEMod emissions model was used in this EIR to estimate GHG emissions that would be generated by construction of non-linear feature BMPs. Non-linear feature BMPs that would result in construction areas less than 35 acres in size would result construction-related GHG emissions less than 1,100 MT of CO_2e per year. Therefore, based on the BAAQMD GHG emissions significance threshold, non-linear feature BMPs less than 35 acres in size would result in a less than significant impact on construction-related GHG emissions.

The largest, non-linear BMP to be constructed to comply with the General Permit would be a detention basin. Detention basins could be constructed at some existing vineyard properties where the vineyard replaced a forest. In these cases, typically the detention basin could require about 3 percent of the vineyard area for proper sizing and function. California Department of Forestry records document about 450 acres of timber conversion plans were processed over the past 17 years. We also are aware of increasing trends in forest cover within the historical period (early 1940 to present) that can be characterized by aerial photographs (SFEI, 2003a and 2003b).

Assuming very conservatively that the total historical conversion for vineyards within the project area is as large as 2,000 acres (more than four times the amount during the past 17 years), then 135 acres would have to be excavated for detention basins and this would occur over a 10-year period, for an average of about 14 acres of construction per year. This non-linear acreage construction estimate falls below the 35-acre GHG emissions significance threshold and the impact is considered less than significant.

Impact Significance after mitigation

Although GHG-1 would reduce potential impact related to GHG emissions to less than significant levels, the Water Board would not have oversight of the implementation of proposed mitigation measures described above. The ability to require such measures is within the purview of jurisdictions with local land use approval and/or permitting authority. In all cases where compliance actions at an individual Vineyard Property meet the CEQA definition of a “Project,” the local land-use authority would issue a CEQA document. In some of those cases, local land use agencies have determined that a categorical exemption applies to the action (e.g. construction of erosion control BMPs within the footprint of existing unpaved roads) or has a streamlined CEQA process in place (e.g. VESCO).

Therefore, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce significant impacts. Even with mitigation, GHG emissions may exceed threshold requirements for the local air districts. Consequently, the EIR takes a conservative approach in its post-mitigation significance conclusion and discloses for CEQA compliance purposes, that **GHG emission impacts could be significant and unavoidable.**

Impact 5.8: Generation of Long-Term Operational GHG Emissions from all BMPs

Implementation of sediment control BMPs would generate a minor amount of vehicle trips during long-term operations for the purposes of:

- Vineyard Property site inspections and compliance monitoring

- inspecting and maintaining drainage facilities
- maintaining cover crops, and
- maintaining roads that service vineyard facilities.

These long-term operational vehicle trips would generate GHG emissions. The number of vehicle trips would vary between types of BMPs and, for each type of BMP, would vary between individual sites.

Section 15064.4(a) of the CEQA Guidelines, CEQA lead agencies should make a good faith effort to estimate GHG emissions resulting from a project. Because the magnitude of operational GHG emissions would vary between types of BMPs and individual sites, quantification of GHG emissions for the General Permit is not possible. However, it is possible to estimate the approximate number of vehicle trips that would result in a significant impact.

As noted above in the Thresholds of Significance section, the CalEEMod emissions model was used in this EIR to estimate long-term operational GHG emissions that would be generated by vehicle trips. If a project is expected to generate more than 1,100 MT of CO_2e per year, GHG emission impacts are considered to be significant. The generation of less than 735 vehicle trips per day would result in long-term operational GHG emissions less than 1,100 MT of CO_2e per year threshold.

In order to exceed CO_2e per year threshold, a new BMP maintenance task that was event-related would have to occur at nearly all vineyard properties enrolled, and it would have to occur on the same day. The most likely scenario would be inspection and/or emergency repairs of BMPs during or soon after a large storm. Although this is a plausible scenario for estimating the maximum number of vehicle trips related to BMP maintenance, under the baseline, these types of storm-related inspections of BMPs in farm areas and/or roads are typical at sites vulnerable to erosion. New BMPs in these areas, presumably if they are at least as effective, would not result in > 735 new (additional) vehicle trips per day (even during a storm event). Therefore, based on the BAAQMD GHG emissions significance threshold, BMPs that would generate fewer than 735 long-term operational vehicle trips per day would result in a **less than significant impact** on long-term operational GHG emissions.. Mitigation measures are not required.

5.8. Energy Consumption

The goal of conserving energy implies the wise and efficient use of energy. The means of achieving this goal include: 1) decreasing overall per capita energy consumption; 2) decreasing reliance on fossil fuels such as coal, natural gas and oil; and 3) increasing reliance on renewable energy sources.

In order to assure that energy implications are considered in project decisions, CEQA requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy (see Public Resources Code section 21100(b)(3)).

A. Construction Energy Consumption

Construction of BMPs would require the use of heavy equipment to conduct temporary or short-term construction activities (e.g., site grading, road shaping, installation of erosion control features, etc.). Construction would utilize equipment that consumes diesel and gasoline fuel. The amount of fuel use anticipated to construct BMPs to comply with the General Permit is typical for the type of construction

common to the operation and maintenance activities associated with vineyard operation and management. There are no aspects of the General Permit's proposed construction process that would require an on-going or permanent commitment of energy or diesel resources. Further, it is not expected that soil or other materials will require off-haul from the vineyard properties, but will instead, be reused on site. Estimates of energy consumption during construction activities include both:

- Off-road equipment (e.g., grading and earth-moving equipment), and
- On-road travel (e.g., construction worker commute travel).

The overall approach applied in quantifying energy consumption is to start with construction activity data, and then to apply energy consumption rates to the activity data. The construction activity data (Napolitano, 2016a) were then supplemented with data from the Road Construction Emissions Model and CalEEMod model. Energy consumption rates are estimated as described in KD Anderson and Associates (2016) and presented in Table 5.12.

Table 5.13. Construction-Related Energy Consumption

Type of Construction	Gallons of Diesel Fuel	Gallons of Gasoline
Reshaping and/or improving the drainage of roads	80,698	5,207
Construction of Detention Basins	23,010	44
Stabilizing Eroding Gullies and Channels	18,698	1,250
Total	122,406	6,501

Source: KD Anderson and Associates (2016)

In summary, construction related to actions undertaken to comply with the General Permit is estimated to consume 122,406 gallons of diesel fuel and 6,501 gallons of gasoline for the operation of construction equipment. Diesel fuel would be supplied by regional commercial vendors.

Comparing our estimates of total BMP construction-related energy consumption (which would take place over a ten-year period) to total estimated energy consumption by off-road vehicles within the unincorporated area of Napa County in 2014 (Ascent Environmental, 2016), energy consumption from BMP construction would equate to less than 0.3 % of the total baseline energy consumption in this category of use, and less than 0.02 % of total energy consumption within the unincorporated area of Napa County during 2014.

B. Operational Energy Consumption

Compliance actions are expected to result in net negative fuel consumption as compared to the baseline at the Vineyard Properties that would be enrolled in the general Permit.

For example, BMP implementation in farming areas would reduce tillage, increase ground cover, and increase soil organic matter through increased application of no-till cover crops, composted mulch, and vegetated filter strips. The net result as compared to the baseline would be a significant decrease in operational energy consumption in farming areas, and also a significant increase in carbon sequestration. Assuming that approximately 10 percent of the acreage that would be enrolled in the General Permit – about 5,000 acres - converted to no-till, using fuel consumption estimates for tillage developed by USDA (http://ecat.sc.egov.usda.gov/), there would be a reduction of approximately 15,000 gallons per year in diesel fuel consumption in farm areas, which within only a 10 year period would off-set construction related fuel consumption.

Implementation of road erosion control projects also would reduce the frequency and extent of road maintenance actions through improved drainage and a reduction in road surface erosion. The net result would be a decrease in operational energy consumption along Vineyard Property roads, as compared to the baseline.

Compliance actions to reduce peak runoff (e.g., detention basins) and/or to stabilize eroding gullies and channels would increase vegetation cover, reduce soil erosion rates, and/or enhance soil organic matter. Energy consumption associated with maintenance of these BMPs would be small as compared to construction of these BMPs.

Summary

Considering all of the above analysis, the EIR finds that the overall energy consumption related to actions taken to comply with the General Permit, considering both construction and operational emissions, is less than significant.

References

Ascent Environmental, 2016. Draft Technical memorandum #1 Greenhouse Gas Emissions Inventory and Forecasts, February 2, 2016. Prepared for County of Napa.

Bay Area Air Quality Management District. (1999). BAAQMD CEQA Guidelines – Assessing the Air Quality Impacts of Projects and Plans. San Francisco, CA.

Bay Area Air Quality Management District. (2006). Bay Area 2005 Ozone Strategy. San Francisco, CA.

Bay Area Air Quality Management District. (2010a). Bay Area 2010 Clean Air Plan. San Francisco, CA.

Bay Area Air Quality Management District. (2010b). Adopted Air Quality CEQA Thresholds of Significance - June 2, 2010. San Francisco, CA.

Bay Area Air Quality Management District. (2011). California Environmental Quality Act Air Quality Guidelines – Updated May 2011. San Francisco, CA.

Bay Area Air Quality Management District. (2012). California Environmental Quality Act Air Quality Guidelines. San Francisco, CA.

Bay Area Air Quality Management District. (2014). Bay Area Air Quality Management District Internet Website. http://www.baaqmd.gov/.

California Air Resources Board. (2008a). Comparison of Greenhouse Gas Reductions for the United States and Canada Under the U.S. CAFE Standard and California Air Resources Board Greenhouse Gas Regulations. Sacramento, CA.

California Air Resources Board. (2008b). Climate Change Scoping Plan. Sacramento, CA.

California Air Resources Board. (2011). Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document. Sacramento, CA.

California Air Resources Board. (2014). California Air Resources Board Website http://www.arb.ca.gov

California Department of Conservation. (2000). A General Location Guide For Ultramafic Rocks in California - Areas More Likely to Contain Naturally Occurring Asbestos. Sacramento, CA.

California Energy Commission. (2005). Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2002 Update. Sacramento, CA.

County of Napa. (2011). Napa County Climate Action Plan. Revised October 31, 2011. Napa, CA.

Federal Emergency Management Agency. (2011). Draft Environmental Assessment Alamo Creek Detention Basin. Oakland, CA.

Intergovernmental Panel on Climate Change, United Nations. (2007). Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC. Geneva, Switzerland.

Shijo, W., 2014. Output reports from the Road Construction Emissions Model and the CalEEMod emissions model for Water Board General Permit for Vineyard Properties. Unpublished model results.

KD Anderson and Associates, 2016. State Water Boards Napa River and Sonoma Creek Vineyards WDR Energy Analysis. Unpublished memo and calculations, prepared for the San Francisco Bay Regional Water Quality Control Board.

Napolitano, M., 2016a. Email correspondence to Wayne Shijo, KD Anderson and Associates, regarding heavy equipment hours associated with construction of road erosion control and gully and channel erosion control BMPs.

U. S. Environmental Protection Agency. (2006). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2004. Washington, DC.

World Meteorological Organization. (2005). Statement on the Status of the Global Climate in 2005: Geneva, 15 December 2005. Geneva, Switzerland.

6. Biological Resources

The purpose of this section is to present an overview of biological resources within Napa and Sonoma counties and to assess the potential for occurrence of special-status plant and animal species, or their habitat, and sensitive habitats such as wetlands within the proposed project area. In addition, this section presents relevant laws and policies that provide for biological resources protection, evaluates the potential impacts to biological resources that may result with project implementation, and develops mitigation measures to reduce these impacts.

The Napa River and Sonoma Creek watersheds constitute the boundary of the Project area. These two watersheds encompass a wide range of diverse wildlife habitats, land uses, including urban, rural, and natural communities that support a variety of plant and wildlife species. Due to the size of the Project area, the approach to analyzing impacts to biological resources is focused on assessing the broader biotic communities, groups of interdependent plant and wildlife species inhabiting a range of environmental conditions across a region, and providing mitigation that would be applicable to future projects located throughout the Proposed Project area to reduce impacts to biological resources in most cases to a less than significant level.

6.1. Regional Setting

Napa and Sonoma counties are located within the central Coast Range, which is characterized by a series of long, linear, major and lesser valleys, separated by steep ridge and hill systems of moderate relief that have been deeply incised by their drainage systems. Both counties are located within the California Floristic Province, with several endemic plant species residing in the counties (Jones & Stokes, 2005a; Sonoma County 2006).

Napa River Watershed

The Napa River watershed is approximately 426 square miles, located in the western portion of Napa County and drains into the San Pablo Bay (Figure 6-1) (Water Board, 2014). The watershed is primarily rural and agricultural with several fast-growing urban areas. The major land cover types within the watershed include forest, grassland/rangeland, and agriculture (Water Board, 2014). Major creeks, tributaries, and water bodies in the Napa River watershed include Upper, Middle, and Lower Napa River; Lake Hennessey-Upper Conn Creek; Chiles Creek; Rector Creek-Lower Conn Creek; Milliken Creek; Dry Creek; Carneros Creek-Frontal San Pablo Bay Estuaries; Tulocay Creek-Frontal San Pablo By Estuaries; and American Canyon Creek-Frontal San Pablo Bay Estuaries.

Figure 6-1: HUC 12 Watersheds

Sonoma Creek Watershed

The Sonoma Creek watershed is approximately 166 square miles, located in the southeastern portion of Sonoma County and drains into the San Pablo Bay (Figure 6-1). Major creeks, tributaries, and water bodies in the Sonoma Creek watershed include Upper and Lower Sonoma Creek, Fowler Creek, Schell Creek, Schell Creek-Frontal San Pablo Bay estuaries, Tolay Creek, and Tolay Creek-Frontal San Pablo Bay Estuaries (Figure 6-1). The central portion of the watershed consists of urban development, with the majority of lower creek valley used for agriculture production (Sonoma County, 2006).

6.1.1. Biotic Communities

Biotic communities are characteristic assemblages of plants and animals found in a given range of soil, climate, and topographic conditions across a region. Descriptions of typical biotic communities found in Napa and Sonoma counties are provided below.

Napa County

A total of 59 natural and human-influenced biotic communities have been identified in Napa County, and 23 of these communities are considered sensitive by California Department of Fish and Wildlife (CDFW) due to their rarity, high biological diversity, and/or susceptibility to disturbance or destruction.

Sensitive natural communities according to CDFW of Napa County include:

- Serpentine bunchgrass grassland
- Wildflower field (located within native grassland)
- Creeping ryegrass grassland
- Purple needlegrass grassland
- One-sided bluegrass grassland
- Mixed serpentine chaparral
- McNab cypress woodland
- Oregon white oak woodland
- California bay forests and woodlands
- Fremont cottonwood riparian forests
- Arroyo willow riparian forests
- Black willow riparian forests
- Pacific willow riparian forests
- Red willow riparian forests
- Narrowleaf willow riparian forests
- Mixed willow riparian forests
- Sargent cypress woodland
- Douglas-fir–ponderosa pine forest (old-growth)

- Redwood forest
- Coastal and valley freshwater marsh
- Coastal brackish marsh
- Northern coastal salt marsh
- Northern vernal pool
- Six of the 59 biotic communities are considered locally sensitive by Napa County due to the limited local distribution and less than 500 acres land cover within the County. These include:
- Native grassland (perennial grassland, bunch grassland)
- Tan bark oak alliance
- Brewer willow alliance
- Ponderosa pine alliance
- Riverine, lacustrine, and tidal mudflats
- Wet meadow grasses NFD super alliance

Sonoma County

Similar to Napa County, Sonoma County encompasses a diverse variety of biotic communities that support a high number of special-status species, including a high number of sensitive natural communities (Sonoma County, 2006; Sonoma County, 2010). Sensitive natural community types identified in the *Sonoma County General Plan* include the following:

- Freshwater marsh
- Freshwater seeps
- Native grasslands
- Mixed oak woodland (i.e. Oregon white oak [*Quercus garryana*], black oak [*Quercus kellogii*], and California buckeye [*Aesculus californica*])
- Oak savanna (i.e. valley oak (*Quercus lobata*)
- Riparian woodland
- Pygmy cypress forest
- Old growth redwood forest
- Mixed conifer forest
- Mixed serpentine chaparral
- Coastal scrub
- Prairie
- Bluff
- Dunes

The filling of marshlands, leveling and conversion of vernal pools for agriculture, overgrazing and introduction of non-native grass species, and an overall increase in urban development has greatly reduced the historical land cover of these sensitive natural communities (Sonoma County, 2006). Eight primary sensitive natural community types have been identified by the California Natural Diversity Database (CNDDB) and are provided below:

- Coastal salt marsh
- Coastal brackish water marsh
- Coastal terrace prairie
- Coastal freshwater marsh
- Central dune scrub
- Northern vernal pool
- Valley needlegrass grassland
- Valley freshwater marsh

Vegetation Communities

The biotic communities and sensitive natural communities in Napa and Sonoma counties, as identified above, have been compressed into seven primary vegetation communities for the Napa River and Sonoma Creek watersheds. A description of each of the seven primary vegetation communities is provided below, and the distribution of the vegetation communities is provided in Figure 6-2. *Vegetation Communities*.

Agricultural Cropland

Agricultural cropland includes vineyards, walnut orchards, olive orchards, hay, apple orchards, peach orchards, kiwi, and a variety of mixed organic vegetables; however, the primary cropland type is vineyards[33]. The majority of the agricultural cropland within the proposed project occurs on the Napa and Sonoma valley floors. Depending of the location of the cropland and the nature of the activities, agricultural cropland may provide corridors between natural habitats for mammals and birds (Napa County, 2007; Sonoma County, 2006).

[33] Approximately 98 percent of the croplands in Napa County are vineyards (Napa County Agricultural Commissioner, 2013).

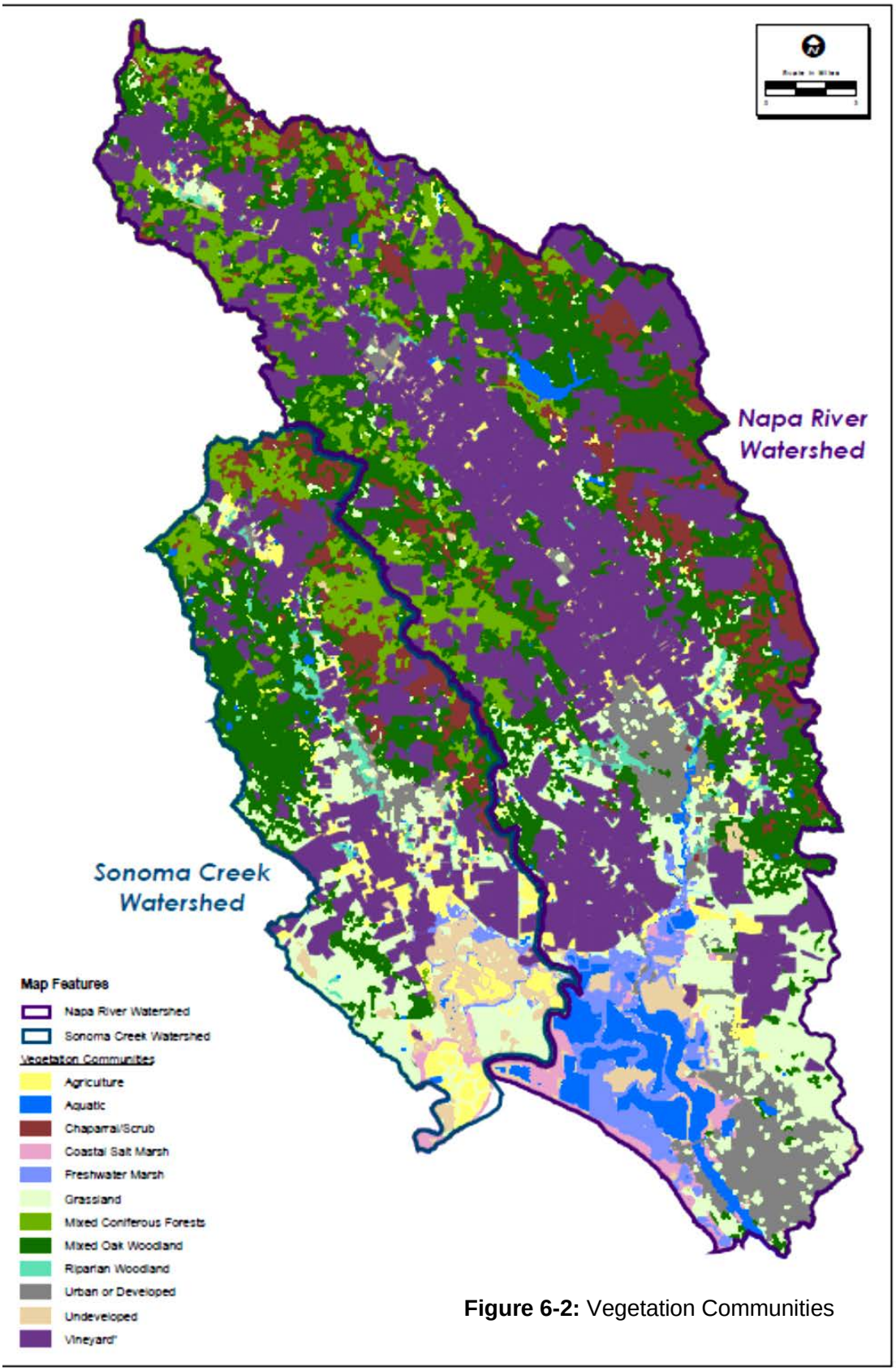


Figure 6-2: Vegetation Communities

Aquatic (including wetlands, springs, pools, creeks/streams, and open water)

The aquatic biotic community consists of freshwater wetland, salt marsh, streams, and reservoirs. Wetlands (freshwater and salt marsh) of a variety of sizes and types occur throughout the Napa River and Sonoma Creek watersheds. Freshwater wetlands are typically smaller in size and are distributed through both watersheds. The unique wetlands occurring in the watersheds include vernal pools, springs, and seeps. Salt marshes occur in the southern portion of the watersheds and cover a large area at the entrance to San Pablo Bay (Figure 6-2.) (Jones & Stokes Associates, 2005a; Sonoma County 2006). Further discussion of salt marshes is discussed below.

Diverse open water aquatic habitats occur throughout the Napa River and Sonoma Creek watersheds. These include streams ranging from narrow mountain streams to broad lowland rivers and several drainages with no riparian vegetation present supporting anadromous fisheries (Napa County, 2007; Sonoma County, 2006).

Coastal Salt Marsh

Coastal salt marsh is a biotic community found at the most southern portion of the Napa River and Sonoma Creek watersheds along the edge of the San Pablo Bay. Salt marshes include saltgrass-pickleweed salt marsh and the related habitat of riverine, lacustrine, and tidal mudflats. Salt marsh in both watersheds is typically dominated by salt grass (*Distichlis spicata*) and pickleweed *(Salicornia* sp.). Wildlife species such as California black rail (*Laterallus jamaicensis coturniculus)*, endangered California clapper rail (*Rallus longirostris*), and endangered salt marsh harvest mouse (*Reithrodontomys raviventris*) are endemic to coastal salt marsh (Napa County, 2007; Sonoma County, 2006).

Freshwater Marsh

Freshwater wetlands are distributed in most major valleys throughout the Napa River and Sonoma Creek watersheds in low depressions and swales. Freshwater wetlands include bulrush-cattail freshwater marsh and *Carex-Juncus* wet meadow grasses. Vernal pools are a subcategory of freshwater wetlands.

Chaparral/Scrub

Chaparral/scrub is also a common biotic community within the Napa River and Sonoma Creek watersheds. Chaparral/scrub is dominated by woody shrubs with few trees occurring mostly on south and southwest-facing slopes. Common chaparral/scrub communities may include: chamise chaparral, leather oak-white leaf manzanita-chamise (serpentine chaparral), and scrub interior live oak-scrub oak (Jones & Stokes Associates, 2005a; Sonoma County 2006).

Grassland

Grassland is a common biotic community within the Napa River and Sonoma Creek watersheds. Four common grassland communities may occur within the counties: annual grassland, native grassland, valley needlegrass, and serpentine (bunchgrass) grassland. Native grassland and serpentine (bunchgrass) grassland are considered sensitive natural communities by CDFW, and vernal pools (another sensitive natural community) are also found in some of the grassland areas. Vernal pools provide habitat for several special-status species (Jones & Stokes Associates, 2005a; Sonoma County 2006).

Mixed Coniferous Forests

Coniferous forests are also a relatively common biotic community within the Napa River and Sonoma Creek watersheds. There are 11 types of coniferous forest that may occur within the watersheds: four are Douglas-fir/redwood forest types, five are pine forest types, and two are cypress woodland. Four types of forest are considered sensitive communities by CDFW: Sargent cypress woodland, McNab cypress woodland, redwood forest, and old-growth Douglas-fir-Ponderosa pine forest. Additionally, Ponderosa pine forests are considered local sensitive communities because they are rare within the counties, and foothill pine forests are also considered rare within the counties (Jones & Stokes Associates, 2005a; Sonoma County 2006).

Mixed Oak Woodland

Oak woodland is the most common biotic community within the Napa River and Sonoma Creek watersheds. Common oak woodland types are mixed oak, coast live oak (*Quercus agrifolia*), interior live oak (*Quercus wislizini*), and blue oak (*Quercus doulgasii*) (Jones & Stokes Associates, 2005a; Sonoma County 2006).

Riparian Woodland

Riparian woodlands and forest are considered rare biotic communities within the Napa River and Sonoma Creek watersheds (Figure 6-2.). Riparian woodlands and forests occur along riparian and stream corridors. Common riparian woodland types include valley oak woodland, California coast redwood forest, and Douglas-fir forest (Jones & Stokes Associates, 2005a; Sonoma County, 2006).

6.1.2. Special-Status Species

Special-Status Plants

A high level of native plant diversity occurs in Napa and Sonoma counties. Several special-status plant species have potential to occur within Napa and Sonoma counties. Documented occurrences according to the CNDDB of special-status species within the Napa River and Sonoma Creek watersheds are shown in Figure 6-3 (*CNDDB Occurrences of Special-Status Plant Species*).

A total of 59 special-status plant species have been documented within the Napa River watershed and/or the Sonoma Creek watershed. Of the species documented, four are federally-listed endangered and nine are federally-listed and state-listed endangered (Figure 6-3) (CDFW, 2014). There is also critical habitat designated for federally listed endangered Contra Costa goldfields (*Lasthenia conjugens*) and federally listed endangered Soft bird's beak (*Chloropyron molle* ssp. *molle*) within the Napa River watershed (Figure 6-4: *Critical Habitat*). Several of the special-status plants occur on specific substrates such as alkaline or serpentine soils or within specific biotic communities such as oak woodlands or chaparral (Napa County 2007). Thus, some areas within the watersheds provide better habitat for special-status plants, and may have a higher chance for special-status species to occur. These areas may include native grassland, serpentine (bunchgrass) grassland, and vernal pools, and wetlands within grasslands, chaparral/scrub, and oak woodland.

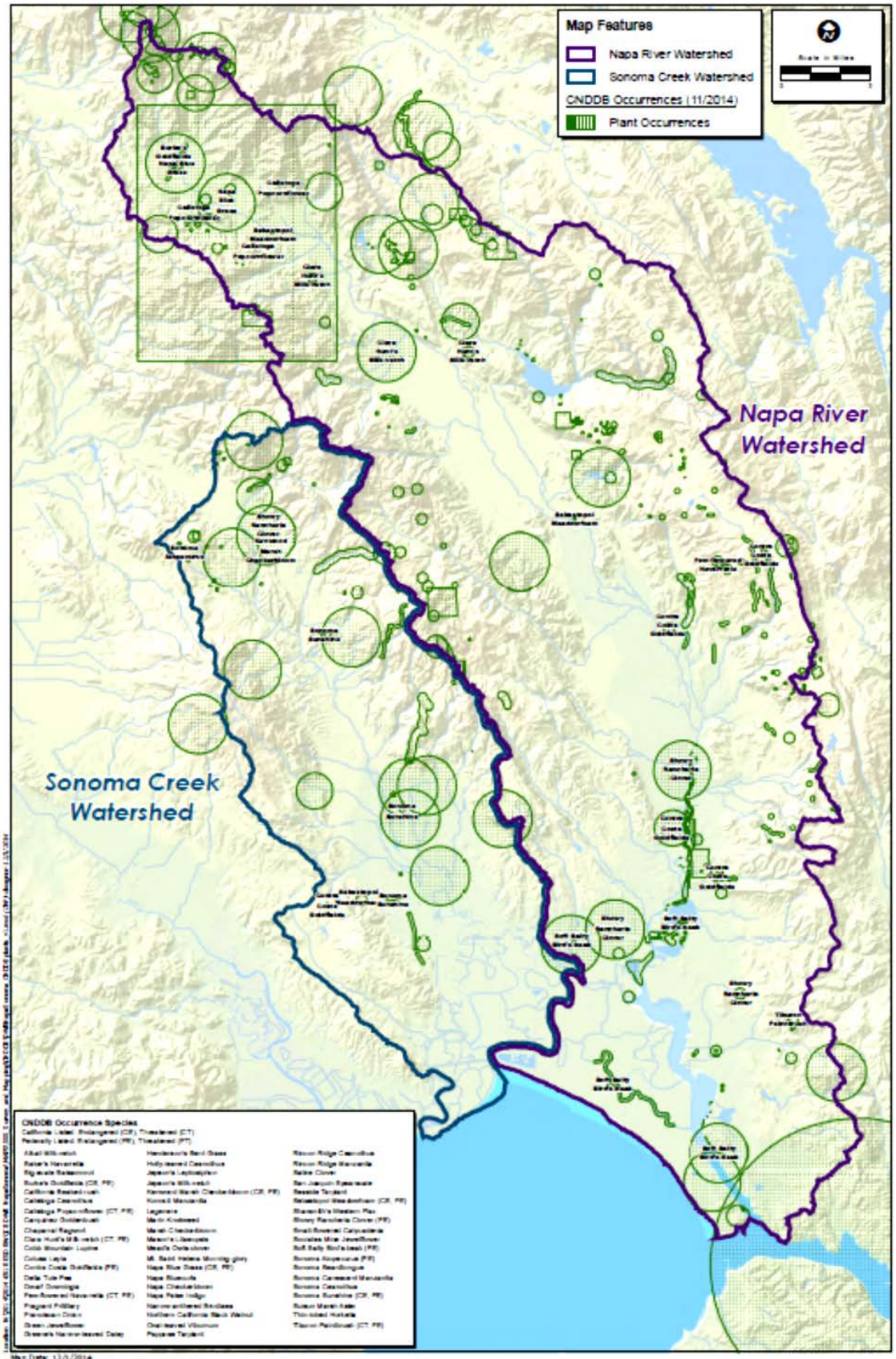


Figure 6-3: CNDDB Occurrences of Special Status Plant Species

2014-051 RESD RWQCB DWR Napa Sonoma

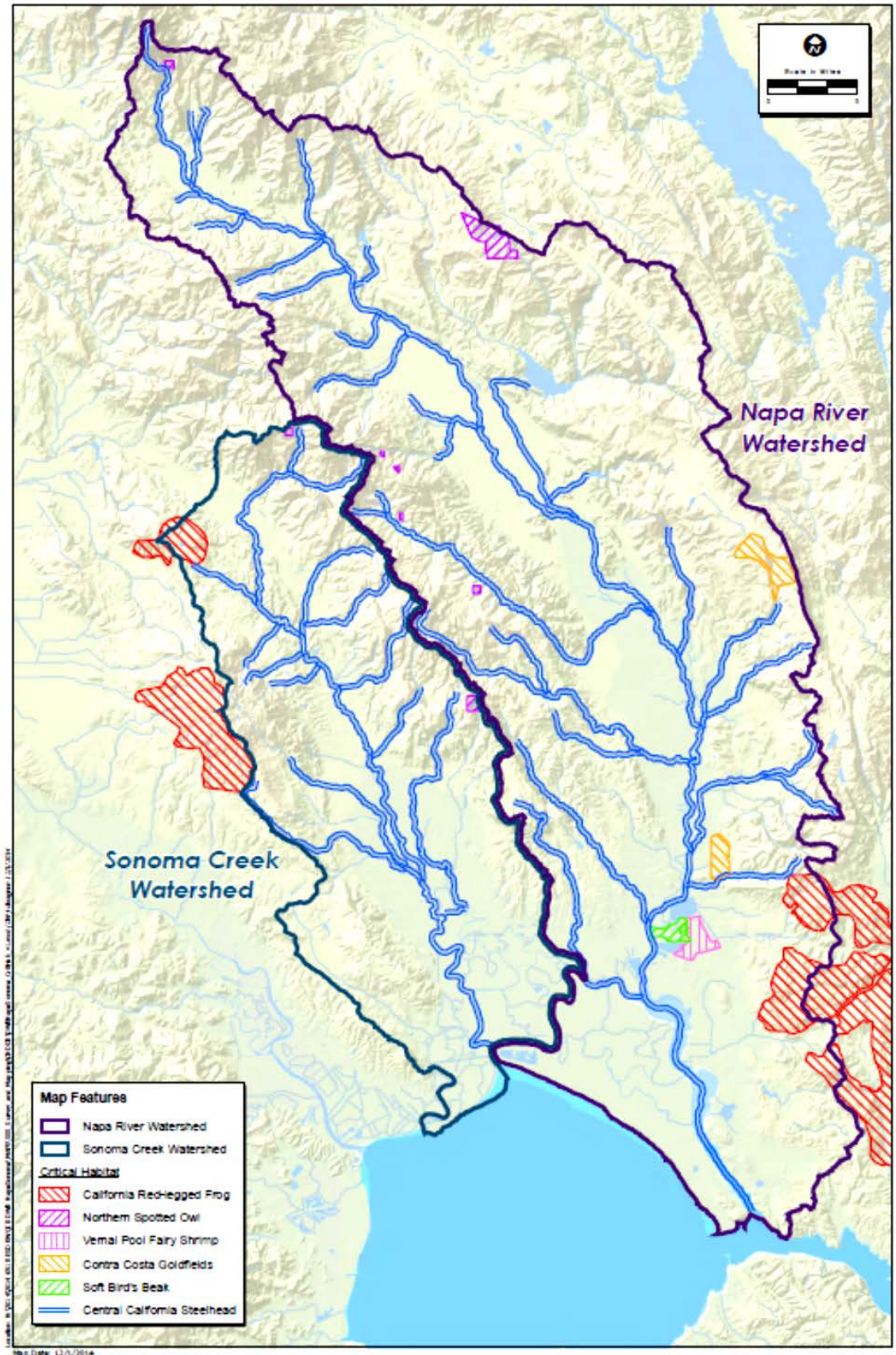


Figure 6-4: Critical Habitat

2014-051 RESD RWQCB DWR Napa Sonoma

Special-Status Wildlife

Several special-status wildlife species have potential to occur within Napa and Sonoma counties. Documented occurrences according to the CNDDB of special-status species within the Napa River watershed and the Sonoma Creek watershed are shown in Figure 6-5 (*CNDDB Occurrences of Special-Status Wildlife Species*).

A total of 48 special-status wildlife species have been documented within the Napa River watershed and/or the Sonoma Creek watershed, 15 of which are federally listed and/or state-listed species (Figure 6-5). There is also critical habitat designated for federally-listed threatened vernal pool fairy shrimp (*Branchinecta lunchi*) in the Napa River watershed, federally-listed threatened California red-legged frog (*Rana draytonii*) within both watersheds, federally-listed threatened Central California Coast steelhead (*Oncorhynchus mykiss*) in both watersheds, and federally-listed threatened northern spotted owl (*Strix occidentalis caurina*) within both watersheds (Figure 6-4). Additionally, special-status birds represent a large portion of the species with potential to occur, which may be a result of the large amount of rare birds that inhabit the Napa River marshes (Jones & Stokes Associates, 2005a). Special-status wildlife occurs throughout all the biotic communities; however, some areas within the watersheds may provide more suitable habitat for special-status wildlife. These areas may include grassland, chaparral/scrub, mixed coniferous forest, oak woodland, riparian woodland and aquatic habitat (i.e. vernal pools, wetlands, marshes, streams, rivers, and ponds).

6.1.3. Wildlife Habitat and Movement Corridors

Napa River Watershed

The Napa River has been identified as one of the three main wildlife movement corridors within the county. The Napa River is characterized by open water, freshwater, brackish and salt marsh, and riparian forest and it serves as a north-south movement corridor for many riparian birds, mammals, amphibians and reptiles. (Jones & Stokes Associates, 2005a).

Sonoma Creek Watershed

Similar to Napa County, there has been a limited amount of study and mapping of habitat connectivity in Sonoma County; however, the Sonoma Creek watershed is identified as an environment that has both natural and human influences where wildlife movement could occur (Sonoma County 2006).

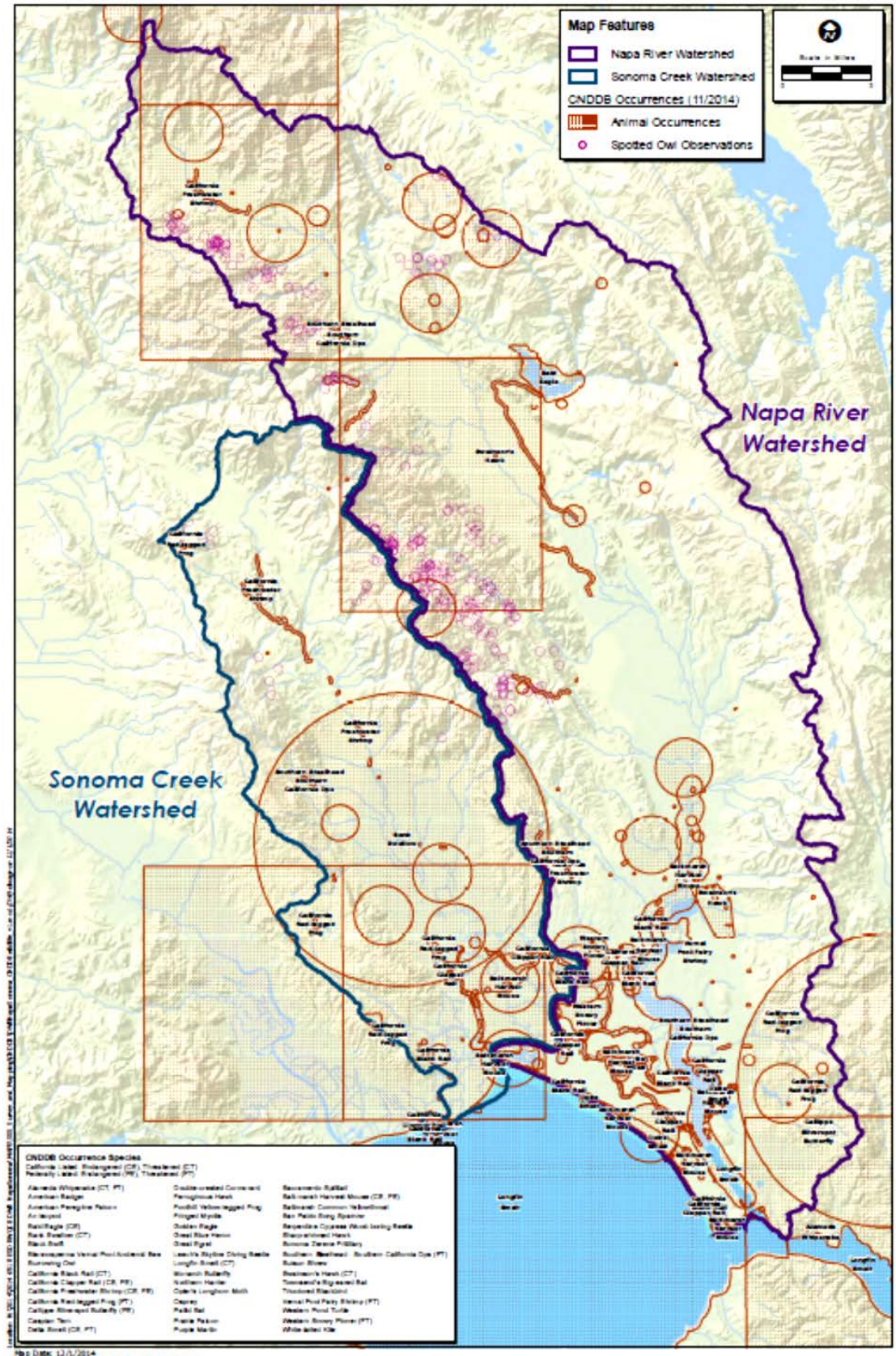


Figure 6-5: CNDDB Occurrences of Special Status Wildlife Species

2014-051 RESD RWQCB DWR Napa Sonoma

6.2. Regulatory Setting

The following local, state, and federal government agencies have regulatory authorities that govern the protection of biological resources.

6.2.1. Federal Regulations

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) protects plants and animals that are listed as endangered or threatened by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). Section 9 of FESA prohibits the taking of listed wildlife, where take is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct” (16 U.S.C §§ 1532(1), 1538.). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law. Under Section 7 of FESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. (16 U.S.C. § 1536.) Through consultation and the issuance of a biological opinion (BO), the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise lawful activity provided the activity will not jeopardize the continued existence of the species. Section 10 of FESA provides for issuance of incidental take permits for non-federal activities, provided a habitat conservation plan is developed. (16 U.S.C. § 1539.)

Section 7

Section 7 of the FESA mandates that all federal agencies consult with USFWS and/or NMFS to ensure that federal agencies’ actions do not jeopardize the continued existence of a listed species or adversely modify critical habitat for listed species. If direct and/or indirect effects will occur to critical habitat that appreciably diminish the value of critical habitat for both the survival and recovery of a species, the adverse modifications will require formal consultation with USFWS or NMFS. If adverse effects are likely, the applicant must conduct a biological assessment (BA) for the purpose of analyzing the potential effects of the project on listed species and critical habitat to establish and justify an "effect determination." The federal agency reviews the BA; if it concludes that the project may adversely affect a listed species or its habitat, it prepares a BO. The BO may recommend "reasonable and prudent alternatives" to the project to avoid jeopardizing or adversely modifying habitat.

Critical Habitat and Essential Habitat

Critical habitat is defined in Section 3 of the FESA as (1) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the FESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. For inclusion in a critical habitat designation, habitat within the geographical area occupied by the species at the time it was listed must first have features that are essential to the conservation of the species. Critical habitat designations identify, to the extent known and using the best scientific data available, habitat areas that provide essential life cycle needs of the species (areas on which are found the primary constituent elements). Primary constituent elements are

the physical and biological features that are essential to the conservation of the species and that may require special management considerations or protection. These include but are not limited to the following:

- Space for individual and population growth and for normal behavior;
- Food, water, air, light, minerals, or other nutritional or physiological requirements;
- Cover or shelter;
- Sites for breeding, reproduction, or rearing (or development) of offspring; and
- Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species.

Excluded essential habitat is defined as areas that were found to be essential habitat for the survival of a species and assumed to contain at least one of the primary constituent elements for the species but were excluded from the critical habitat designation. The USFWS has stated that any action within the excluded essential habitat that triggers a federal nexus will be required to undergo the Section 7(a)(1) process, and the species covered under the specific critical habitat designation would be afforded protection under Section 7(a)(2) of the FESA. As illustrated in Figure 6-4, critical habitat has been designated within the project area for California red-legged frog, northern spotted owl, vernal pool fairy shrimp, Contra Costa goldfields, soft bird's beak, and central California coast steelhead.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Department of Fish and Game (CDFG) Code.

Federal Clean Water Act

The federal Clean Water Act's (CWA) purpose is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." The federal Clean Water Act establishes water quality standards including beneficial uses, as described in the Basin Plan for the San Francisco Bay Region that have been adopted in part to protect uses of water that relate to biological resources including areas of special biological significance; rare, threatened, or endangered species; cold freshwater habitat; marine habitat; fish migration; fish spawning; warm freshwater habitat; and wildlife habitat (Water Board, 2015).

Section 404 of the CWA prohibits the discharge of dredged or fill material into "waters of the United States" without a permit from the U.S. Army Corps of Engineers (USACE). The definition of waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR § 328.3 7b). The U.S.

Environmental Protection Agency (EPA) also has authority over wetlands and may override a USACE permit.

Impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Water Board.

The CWA regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

6.2.2. State or Local Regulations

California Fish and Game Code

California Endangered Species Act

The California Endangered Species Act (CESA) (Fish and Game Code sections 2050-2116) generally parallels the main provisions of the FESA, but unlike its federal counterpart, CESA applies the take prohibitions to species proposed for listing (called “candidates” by the state). Section 2080 of the CDFG Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in section 86 of the Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA allows for take incidental to otherwise lawful development projects only as permitted under the conditions of an incidental take permit issued by the California Department of Fish and Wildlife. The Water Board has no authority to permit take of any protected species. State lead agencies are required to consult with the California Department of Fish and Wildlife (CDFW) to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened or candidate species or result in destruction or adverse modification of essential habitat.

Fully Protected Species

The State of California first began to designate species as “fully protected” prior to the creation of the CESA and FESA. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction, and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under CESA and/or FESA. The regulations that implement the Fully Protected Species Statute (Fish and Game Code section 4700 for mammals, section 3511 for birds, section 5050 for reptiles and amphibians, and section 5515 for fish) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFW prohibits any state agency from issuing incidental take permits for fully protected species (CDFW Code Section 2053). CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 was created with the intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA is administered by CDFW and governed by Fish and Game Code Sections 1900-1913. The Fish and Wildlife Commission has the authority to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take. The CESA of 1984 (Fish and Game Code sections 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the Fish and Game Code.

Birds of Prey

Sections 3800, 3513, and 3503 of the California Department of Fish and Game (CDFG) Code specifically protect birds of prey. Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the commission or a mitigation plan approved by CDFW for mining operations. Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

Section 3503 of the Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Additionally, section 3503.5 prohibits the take, possession, or destruction of any birds and their nests in the orders Strigiformes (owls) or Falconiformes (hawks and eagles). These provisions, along with the federal MBTA, serve to protect nesting native birds.

California Streambed Alteration Notification/Agreement

Section 1602 of the Fish and Game Code requires that a Streambed Alteration Application (SAA) be submitted to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." CDFW reviews the proposed actions and, if necessary, submits proposed measures to protect affected fish and wildlife resources to the applicant. The final proposal that is mutually agreed-upon by CDFW and the Applicant is the SAA. Often, projects that require a SAA also require a permit from the USACE under section 404 of the CWA. In these instances, the conditions of the section 404 permit and the SAA overlap.

Species of Special Concern

Species of Special Concern (SSC) are defined by the CDFW (e.g., Pacific lamprey and Sacramento hitch, CDFW, 2015; western pond turtle, CDFG, 1994) as a species, subspecies, or distinct population of an animal native to California that are not legally protected under FESA, CESA or the Fish and Game Code, but currently satisfies one or more of the following criteria:

- the species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role;
- the species is listed as federally (but not state) threatened or endangered, or meets the state definition of threatened or endangered but has not formally been listed;
- the species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could cause it to qualify for state threatened or endangered status;
- the species has naturally small populations that exhibit high susceptibility to risk from any factor that, if realized, could lead to declines that could cause it to qualify for state threatened or endangered status.

SSC are typically associated with habitats that have been fragmented and/or significantly reduced in area and/or quality as a result of development. Project-related impacts to SSC, state-threatened or endangered species are considered "significant" under the California Environmental Quality Act (CEQA).

California Plant Ranks

The California Native Plant Society (CNPS) maintains the *Inventory of Rare and Endangered Plants of California* (CNPS, 2014), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, and/or low populations. Plant species meeting one of these criteria are assigned to one of six California Rare Plant Ranks that range from a "watch" list to those presume extirpated in California. The rank system was developed in collaboration with government, academia, non-governmental organizations, and private sector botanists, and is jointly managed by CDFW and the CNPS. The California Rare Plant Ranks are currently recognized in the California Natural Diversity Database (CNDDB).

Additionally, the CNPS has defined Threat Ranks that are added to the California Rare Plant Rank as an extension. Threat Ranks designate the level of threat on a scale of one through three, with one being the most threatened and three being the least threatened.

Factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Rank, and differences in Threat Ranks do not constitute additional or different protection (CNPS, 2014).

Substantial impacts to plants ranked 1A, 1B, or 2 are considered significant under CEQA Guidelines Section 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 3 or 4.

Porter-Cologne Water Quality Control Act

The Water Board implements water quality laws and regulations under the federal CWA (discussed above) and the State Porter-Cologne Water Quality Control Act (Porter-Cologne). Under Porter-Cologne, the Water Board is the principal state agency with responsibility for the coordination and control of water quality in the San Francisco Bay area, including issuing waste discharge requirements (WDRs) to any person "discharging waste, or proposing to discharge waste, with any region that could affect the water of the state" (Water Code, § 13260(a)). Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code, § 13050(e)). The Water Board also regulates dredging, filling, or discharging materials into waters of the State that are not regulated by the USACE due to a lack of connectivity with a navigable water body. The Water Board may require issuance of WDRs for these activities. The Water Board is authorized to prescribe General Permit for a category of discharges (such as vineyards) if it determines that the discharges are produced by the same or similar operations, involve similar types of waste, require the same or similar treatment standards and are more appropriately regulated under general discharge requirements than individual discharge requirements.

California Environmental Quality Act

Per the CEQA Guidelines' Section 15380 a species not protected on a federal or state list may be considered rare or endangered if the species meets certain specified criteria. These criteria follow the definitions in FESA, CESA and Sections 1900-1913 of the Fish and Game Code, which deal with rare or endangered plants or animals. Section 15380 was included in the Guidelines primarily to deal with

situations where a project under review may have a significant effect on a rare or endangered species that has not yet been listed by either the USFWS or CDFW.

6.2.3. County Regulations and Policies

Napa County General Plan

The Conservation Element of the *Napa County General Plan* has several goals and policies geared towards to conservation and preservation of natural resources within Napa County. The following is a list of ordinances that may be applicable to the Proposed Project. A full description of all goals and polices pertaining to natural resources can be found in Conservation Element *Napa County General Plan.*

Napa County Code of Ordinances

The following ordinances are taken from the Napa County Code of Ordinances and may be applicable to the Proposed Project (Napa County, 2014).

Chapter 18.108 – Conservation Regulations

18.108.100 0 Erosion hazard areas – Vegetation preservation and replacement

Whenever a project within an erosion hazard area requires issuance of a discretionary permit such as a use permit or an administrative permit including, but not limited to, building permits, grading permits, erosion control plans, permits in compliance with the NPDES program and sewage disposal system permits, the permit shall be subject to conditions governing preservation of existing vegetation, removal of vegetation where necessary and authorized, and replanting of vegetation.

Sonoma County General Plan

The Open Space and Conservation Element of the *Sonoma County General Plan 2020* has several goals, objectives and policies geared towards to conservation and preservation of natural resources within Sonoma County. The following is a list of ordinances that may be applicable to the Proposed Project. A full description of all goals and objectives pertaining to natural resources can be found in *Open Space and Conservation Element Sonoma County General Plan*.

Sonoma County Code of Ordinances

The following ordinance is taken from the Sonoma County Code of Ordinances and may be applicable to the Proposed Project (Sonoma County, 2014).

Chapter 11 – Grading, Drainage, and Vineyard and Orchard Site Development

New vineyard development and replants in Sonoma County are guided by the Grading, Drainage, and Vineyard and Orchard Site Development Ordinance (VESCO). The Sonoma County Agricultural Commissioner's Office implements and enforces VESCO. In most cases, permits are ministerial provided that standard terms and conditions of the permits that are intended to protect the environment are incorporated including the requirement to prepare a biological survey to protect all listed species from significant impacts.

VESCO requires a permit for any grading, drainage improvement, or site development associated with new or replanted vineyards. VESCO permits are issued at two levels that take into account soil type, soil erosivity, and slope as follows (Sonoma County Code, Chapter 11.08.010):

■ Level I – Applies to new vineyards or replants developed on slopes less than or equal to 10 to 15 percent and does not require ECP documentation or verification of project completion.

■ Level II – Applies to new vineyards or replants on slopes greater than 10 or 15 percent and requires the project proponent to submit an ECP that is reviewed by the VESCO staff. VESCO staff conducts post-construction review to confirm that ECP design plans were followed and implemented appropriately.

Both Level I and Level II projects are required to adhere to the best management practices and standards described in the Best Management Practices for Agricultural Erosion and Sediment Control manual (Sonoma County Agricultural Commissioner's Office, 2010).

Chapter 26D – Heritage or Landmark Trees

Sec. 26D-5. – Permit processing procedures.

This ordinance establishes procedures governing removal of or possible damage to a heritage or landmark tree or trees.

6.3. Environmental Analysis

6.3.1. Approach and Methods

The purpose of this section is to (1) assess the potential for occurrence of special-status plant and animal species, or their habitat, and sensitive habitats such as wetlands within the project area and (2) determine whether the Project would have a significant impact on these resources. Due to the large size of the proposed project area, spanning two counties, a site reconnaissance survey is not practicable and was not conducted. The analysis is based upon a literature review and database queries.

In this section, special-status species are defined as plants or animals that:

- Are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal ESA;
- Are listed or candidates for future listing as threatened or endangered under the California ESA;
- Meet the definitions of endangered or rare under Section 15380 of CEQA;
- Are identified as a species of special concern by CDFW;
- Are birds identified as birds of conservation concern by the USFWS;
- Are plants considered by the CNPS to be "rare, threatened, or endangered in California" [California Rare Plant Rank (CRPR) 1 and 2];
- Are plants listed as rare under the California Native Plant Protection Act (Fish and Game Code of California, Section 1900 et seq.); or
- Are fully protected in California in accordance with the Fish and Game Code of California, Sections 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).
- Only species that fall into one of the above listed groups were considered for this assessment. While other species (i.e. CRPR 3 or 4 species) are sometimes found in database searches or

within the literature, these were not included within this analysis because these species are considered part of the CNPS Watch List and there is limited data available regarding the distribution of the species.

- The following lists were queried to provide an overview of potential special-status species that may occur in Napa and Sonoma counties:
- USFWS Federal Endangered and Threatened Species that may be affected by projects in Napa and Sonoma counties
- CNPS electronic *Inventory of Rare and Endangered Plants of California* was queried for the Napa and Sonoma counties

To narrow the focus of potential special-status species to the vicinity of the proposed project area, the CDFW CNDDB was also queried to determine the special-status species that had been documented within the boundaries of the Napa River and Sonoma Creek watersheds.

Additional background information was reviewed regarding the documented or potential occurrence of special-status species and descriptions of biotic communities within or in the vicinity of the proposed project area from the following sources:

- Napa County General Plan Draft Environmental Impact Report
- Napa County General Plan
- Sonoma County General Plan Draft Environmental Impact Report
- Sonoma County General Plan

6.3.2. Thresholds of Significance

An impact to biological resources is considered significant if it would result in any of the following issues:

- 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 CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS;
- 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;
- 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;
- Conflict with any local policies or ordinances protecting biological resources, such as at tree preservation policy or ordinance;
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

6.3.3. Impacts and Mitigation Measures

In the section that follows, we evaluate and identify potential impacts to biological resources that could occur as a result of actions taken to comply with the proposed project (General Permit) or any of the project alternatives (e.g., implementation of the General Permit at fewer sites and/or over a more limited geographic area). As described in detail below, at almost all Vineyard Properties, potential impacts to biological resources would be less than significant. However, two types of potential impacts to biological resources could occur under the proposed project or any of the project alternatives including:

1) At a small number of vineyard properties, **noise generated by heavy equipment** used to construct BMPs on existing or new unpaved roads, and/or to construct detention basins, **could disrupt breeding and/or nesting by special-status bird species**, where heavy equipment is used in the nesting season and within ¼-mile of a nest site; and

2) At a small number of hillslope vineyard properties and none of the valley-floor vineyard properties, **detention basins could be built in previously undeveloped sites**, a fraction of **which may overlap with defined sensitive natural communities and/or special-status species or their habitats**.

Also, as described below, we note that the proposed project or any of the project alternatives will have a significant beneficial effect on aquatic and riparian habitat conditions, and defined sensitive natural communities and special-status species therein, as a result of a significant reduction in fine sediment deposition in channels and an increase in the extent of riparian vegetation.

Impact 6-1a Compliance with the General Permit will reduce sand and finer sediment delivery to stream channels benefiting aquatic wildlife species

Road sediment discharge, and land-use related channel erosion, gullying, and landsliding will all be reduced substantially (on average by 50 percent) within the vineyard properties enrolled in the permit. We estimate that as much as 90 percent of planted vineyard acreage and about 70 percent of the total vineyard property acreage would be enrolled in the permit or otherwise meet sediment and storm runoff discharge performance standards.

As a result, sand concentration in the stream bed will be reduced, which in turn will enhance the quality of spawning habitat and survival-to-emergence for Chinook salmon and steelhead (Water Board, 2009a, pp. 8, 9, 14, 42, and 60-67) and also for foothill yellow-legged frog (Ashton, 1997), which also spawn and deposit their eggs in the streambed. The quality of rearing habitat for steelhead and Chinook salmon also would be enhanced because a reduction in sand supply would:

a) Reduce the embeddedness of cobble and boulder substrate, making these spaces (between the cobble and boulder substrate) available as refuges from predators (Suttle et al., 2004; and also as described in Water Board, 2009a, p. 9);

b) Increase pool depth (Lisle and Hilton, 1999); and

c) Increase the biomass of invertebrates that are the preferred prey species for juvenile salmonids (Suttle et al., 2004).

All of these changes would be beneficial with regard to growth and survival of juvenile salmonids.

Similarly, reduced embeddedness of cobble and boulder substrate and/or increase in pool depth would enhance rearing conditions through improved cover and resultant reduction in predation for several

other special status aquatic species including foothill yellow-legged frog (Ashton, 1997), California red-legged frog (USFWS, 2002), California freshwater shrimp[34] (Martin et al., 2009), and western pond turtle (CDFW, no date).

The reduction in stream sedimentation would have a significant long-term ***beneficial*** impact on special status aquatic wildlife species including steelhead, foothill yellow-legged frog, California red-legged frog, western pond turtle; and also on populations of Chinook salmon, that are locally rare in Bay Area streams.

Impact 6-1b Construction of BMPs could result in short-term erosion at construction sites, temporary increases in fine sediment delivery to stream channels, and resultant sedimentation. Short-term sedimentation increases could adversely affect some special-status aquatic wildlife species.

As described in the evaluation of Impact 6-1a, although the long-term effect of BMP construction would be a substantial reduction in the delivery of sand and finer sediment to stream channels, short-term erosional adjustments could occur at some BMP sites following construction, which could cause temporary increases in fine sediment delivery to channels. In particular, BMP construction projects in channels including soil bioengineering techniques (BMP-12), decommissioning problem roads (BMP-19), and/or construction of a new storm-proofed road (BMP-20) may be vulnerable to some erosional adjustments during and soon after construction period until vegetation re-establishes at these sites.

Eroded sediment could be deposited in stream reaches that provide spawning and/or rearing habitat for special-status including steelhead, California red-legged frog, foothill yellow-legged frog, and/or western pond turtle, and/or Chinook salmon, which are locally rare in Bay Area streams. As discussed previously in Impact 6-1a., the quality of spawning and/or rearing habitats for all of the above listed these species can be significantly altered by sedimentation.

Summary

Increases in sedimentation could occur through erosional adjustments at BMP construction sites that could adversely affect streambed characteristics for steelhead, Chinook salmon, California red-legged frog, California freshwater shrimp, foothill yellow-legged frog, and/or western pond turtle. While these impacts would be expected to be short-term and limited in scope, compliance actions that could have a substantial adverse impact on habitat conditions for any of the special-status aquatic wildlife species listed above would be considered a ***significant impact***.

Mitigation Measures

Where BMP construction overlaps with and/or disturbs a stream channel, riparian area, and/or other wetlands or waters of the United States[35], the Water Board would require the project proponent to comply with **Mitigation Measure BR-1**: Where BMP construction and/or installation would overlap with aquatic or riparian habitats, Mitigation Measure BR-1 requires project proponents to apply for a Clean

[34] Increases in fine sediment deposition would reduce the rearing area within undercut banks that California freshwater shrimp use as refugia habitat.

[35] Detention basins and constructed wetlands (BMP-10), Soil bioengineering techniques (BMP-11 and BMP-12), decommissioning roads (BMP-19), and/or construction of new storm-proofed roads (BMP-20) all may overlap with jurisdictional areas.

Water Act Section 401 permit authorization and waste discharge requirements, and also to comply with the requirements thereof. Standard conditions of the Water Board CWA Section 401 permit and waste discharge requirements include the requirements to comply with the terms and conditions of the CDFW Streambed Alteration Agreement and the Section 7 consultations.

Projects subject to CWA Section 401 permits also are subject to Clean Water Act Section 404 permits issued by the US Army Corps of Engineers, and also to Endangered Species Act Section 7 Consultations where species listed under the federal Endangered Species Act have the potential to occur.

Where BMP construction activities overlap at all with aquatic and/or riparian habitats, they also are subject to Streambed Alteration Agreements issued by the California Department of Fish and Wildlife (CDFW), which would reduce impacts to all special-status species to a less than significant level.

To avoid significant increases in sediment delivery to channels (and resultant sedimentation) that could arise from any construction activities undertaken to comply with the General Permit, the General Permit also incorporates a suite of Construction Activity Controls (**Mitigation Measures BR-2** through **BR-8**) to avoid and minimize potential pollutant discharges that may be associated with construction activities and/or post-construction erosion in areas that were disturbed including all of the following conditions that are enforceable under the General Permit, as applicable to a given site.

Temporal Limitations on Construction (**Mitigation Measure BR-2**):

1. The timing of construction activities will take into consideration fisheries and other aquatic wildlife usage in the project area. Construction activities will occur in the period between June 1 and October 15, unless (as applicable[36]) CDFW, US Fish & Wildlife Service, and/or NOAA Fisheries define an alternative work window to avoid site specific impacts on special-status species. Work in and around streams that support anadromous fish populations or California freshwater shrimp may not begin until June 15. Work beyond October 15 may be authorized on a site-specific basis with approval (as applicable) from the Water Board, CDFW, USFWS, and/or NOAA Fisheries and provided the work would be completed prior to first winter rains. Planting may occur after October 15, if success of vegetation establishment is increased due to more favorable environmental conditions. Planting above the ordinary high water line may occur at any time of the year.

2. Excavation and grading activities will occur only in dry weather periods. Upon completion of grading, slope protection of all disturbed sites will be installed prior to the onset of rain.

3. Construction within 75 feet of established riparian vegetation will be avoided during the migratory bird nesting season (February 15 to August 15). If work must occur during this period, a qualified biologist or individual approved by CDFW will conduct a pre-construction survey for bird nests or nesting activity in the project area. If active nests or nesting behavior are observed (for any species other than starlings and house sparrows) an exclusion zone of 75 feet will be established to protect the nesting birds. If any listed or sensitive bird species are identified, CDFW must be notified prior to further action. Take of active bird nests is prohibited.

4. To protect California red-legged frog (CRLF) and/or foothill yellow-legged frog, all construction within stream channels will take place during daylight hours. If suitable habitat is present for CRLF or foothill yellow-legged frog, project activities will begin after July 1 to avoid impacts on breeding or egg masses.

[36] In describing requirements under Mitigation Measures BR-2 through BR-8, “as applicable” refers to all projects (BMP construction/maintenance actions) that are subject to the requirement to obtain a permit from the agency that is indicated in the text that follows.

Requirements for Construction Site Management (**Mitigation Measure BR-3**)

1. As feasible, use existing ingress or egress points. Placement of temporary access road, staging areas, and other facilities will avoid or limit disturbance to habitat and will be restored to preconstruction conditions.

2. Disturbance to existing grades and vegetation will be limited to the actual site of the conservation project and necessary access routes.

3. Trash, litter, construction debris, cigarette butts, etc., will be stored in a designated portion of the construction site (that does not overlap with or impact natural habitat areas), and/or will be removed from the site at the end of each working day. Upon completion of work, contractor is responsible for removing all trash, litter, construction debris, cigarette butts, etc.

4. All construction debris and sediments will be taken to appropriate landfills or, in the case of sediments, disposed of in upland areas on- or offsite.

5. No petroleum products, chemicals, silt, fine soils, and any substances deleterious to fish, amphibian, plant, or bird life will be allowed to pass into, or be placed where it can pass into the waters of the state.

6. Contractors will have emergency spill cleanup gear (spill containment and absorption materials) and fire equipment available on site at all times.

7. The use or storage of petroleum-powered equipment will be accomplished in a manner to prevent the potential release of petroleum materials into waters of the state (Fish and Game Code §5650).

8. All vehicles and equipment on the site must not leak any type of hazardous materials such as oil, hydraulic fluid, or fuel. Fueling will take place outside of the riparian corridor.

9. As needed, a contained area located at least 50 feet from a watercourse will be designated for equipment storage, short-term maintenance, and refueling. If possible, these activities will not take place on the project site.

10. Vehicles will be inspected for leaks and repaired immediately. Leaks, drips, and other spill will be cleaned up immediately to avoid soil or groundwater contamination. Major vehicle maintenance and washing will be done off site. All spent fluids, including motor oil, radiator coolant, or other fluids, and used vehicle batteries will be collected, stored, and recycled as hazardous waste off site. Dry cleanup methods (i.e., absorbent materials, cat litter, and/or rags) will be available on site. Spilled dry materials will be swept up immediately

11. Best management practices for construction period runoff and erosion control will be employed as described in Requirements for Erosion Control below.

Requirements for Erosion Control (**Mitigation Measure BR-4**)

1. Best management practices for construction period runoff and erosion control will be employed.

2. Erosion control and/or sediment detention devices will be incorporated into the project design and implemented at the time of construction. These devices will be in place prior to October 15 for the purposes of minimizing fine sediment input to flowing water. These devices will be placed at all locations where the likelihood of sediment input exists. Sediment collected in these devices will be

disposed of away from the collection site and above the normal high water mark. These devices will be inspected regularly to ensure they are functioning properly.

3. The project site will be restored to pre-construction condition or better. Disturbed areas will be revegetated prior to the onset of rain by live planting, native seed casting, or hydro-seeding. See also Limitations on Construction Equipment, Earthmoving, and Vegetation Removal sections below.

4. When implementing or maintaining a critical area planting[37] above the high water line, a filter fabric fence, biodegradable fiber rolls, gravel bars, and/or hay bales will be utilized, if needed, to keep sediment from flowing into the adjacent waterbody. At the time vegetation is sufficiently mature to provide erosion control, it may be appropriate to remove the fence, fiber rolls and/or hay bales. Annual review by the vineyard owner/operator and/or their representative(s) will occur until the critical area planting is established to control erosion.

5. All debris, sediment, rubbish, vegetation, or other material removed from the channel banks, channel bottom, or sediment basins will be removed to a location where they will not re-enter the waters of the state.

6. Soil exposed as a result of construction and soil above rock riprap will be revegetated using native seed casting or by hydro-seeding prior to the onset of rain. In general, interstitial spaces between rocks will be planted with riparian vegetation such as willows rather than hydro-seeded.

7. Discharge of decant water from any onsite temporary sediment stockpile or storage areas or any other discharge of construction dewatering flows to surface waters, except as described in Limitations to Work in Streams and Permanently Ponded Areas below, outside of the active dredging site is prohibited.

8. Inspect performance of sediment control devices at least once each day during construction to ensure the devices are functioning properly.

Limitations on Construction Equipment (**Mitigation Measure BR-5**)

1. When possible, use existing ingress or egress points, and work will be performed from the top of creek banks.

2. When heavy equipment is used, woody debris and vegetation on banks and in the channel will not be disturbed if outside of the project's scope.

3. Heavy equipment will not be used in a flowing stream, creek, or ponded area, except to cross a stream or pond to access the work site.

4. Heavy equipment use in a streambed is only permissible when the streambed is dry. The amount of time heavy equipment is stationed, working, or traveling within the creek bed will be minimized.

5. Use of heavy equipment will be avoided in a channel bottom with rocky or cobbled substrate. If access to the work site requires heavy equipment to travel on a rocky or cobbled substrate, a rubber tire loader/backhoe is the preferred vehicle.

Limitations on Earthmoving (**Mitigation Measure BR-6**)

1. Finished grades will not exceed 2:1 side slopes.

[37] A critical area planting involves establishing permanent vegetation on sites that have or are expected to have, high erosion rates.

2. Excavated material not used in the implementation of the BMP will be removed out of the 100-year flood plain.

3. Placement of temporary access roads, staging areas, and other facilities will avoid or limit disturbance to habitat and will be restored to pre-construction conditions.

4. Road improvement projects will be modeled on the “Handbook for Forest and Ranch Roads: A Guide for planning, designing, constructing, reconstructing, maintaining and closing wildland roads,” (Weaver et al., 2014).

5. If the substrate of a seasonal pond, creek, stream or waterbody is altered during work activities, it will be returned to approximate pre-construction conditions after the work is completed, unless (as applicable) NOAA Fisheries and/or CDFW determine that other measures should be implemented.

6. Overhanging banks within potential California freshwater shrimp habitat will remain undisturbed.

Limitations on Vegetation Removal and Replanting Requirements (**Mitigation Measure BR-7**)

1. The spread or introduction of exotic plant species will be avoided to the maximum extent possible by avoiding areas with established native vegetation during project activities, restoring disturbed areas with native species where appropriate, and performing post-project monitoring and control of exotic species.

2. Removal of invasive exotic species is strongly recommended. Removal using hand tools, including chainsaws and weed-whackers, and hand pulling of exotics will be done in preparation for establishment of native plantings. To the extent possible, revegetation will be implemented at the same time removal of exotic vegetation occurs. If giant reed (*Arundo donax*) is removed, cuttings will be disposed of in a manner that will not allow reseeding to occur.

3. Disturbance of native shrubs or woody perennials or removal of trees from streambanks or stream channels will be avoided or minimized; if native riparian vegetation will be disturbed, it will be replaced with similar native species.

4. Except (as applicable) with approval from CDFW, there will be no cutting or removal of native trees 4” or greater diameter at breast height (DBH), except willows, for which there will be no cutting or removal of trees 6” or greater DBH. Exotic trees that are causing habitat damage or hazardous situations may be removed with approval of the project biologist. Any exotic trees removed will be replaced with appropriate natives. For any permitted tree removal, the root structure will be left intact unless (as applicable) removal is authorized by CDFW.

5. If native trees over 6” DBH are to be removed (with approval from CDFW), they will be replaced at a 3:1 ratio.

6. Projects within potential California red-legged frog habitat will be designed to minimize disturbance to vegetation near or in permanent and seasonal pools of streams, marshes, ponds, or shorelines with extensive emergent or weedy vegetation.

7. Project activities in areas of potential California freshwater shrimp habitat will avoid removal of or damage to overhanging vegetation along stream channels.

8. Hand labor will be used to trim vegetation within the channel or on the bank. Handheld equipment such a weed-whackers and chainsaws are authorized.

9. Native plants characteristic of the local habitat type will be the preferred alternative when implementing and maintaining the BMPs in natural areas. When specified, as required by the regulatory

agencies, only native plant species will be used. Under special circumstances, regulators may allow for the use of non-invasive, non-persistent grass species.

10. All areas disturbed by the project or in which vegetation was removed will be restored to a natural state with native trees, shrubs, and/or grasses. Barren areas will typically be planted with a combination of willow stakes, native shrubs, and trees and/or erosion control grass mixes.

11. For projects that have removed native vegetation, post-construction revegetation success will be equivalent to or better than the pre-project conditions. If, after 5 years, that level of success has not been achieved, the vineyard owner/operator or their representative(s) will consult with CDFW to develop and implement measures to achieve success.

12. If needed, an irrigation system will be installed to ensure establishment of vegetation; when vegetation is sufficiently established, irrigation materials will be removed.

13. The project area will be restored to pre-construction conditions or better.

Limitations on Work in Streams and Permanently Ponded Areas (**Mitigation Measure BR-8**)

1. In specific cases where it is deemed necessary to work in a flowing stream/creek, the work area will be isolated, and all flowing water will be temporarily diverted around the work site to maintain downstream flows during construction. A qualified biologist will prepare a species protection and dewatering plan and be present for all dewatering and re-watering events. The plan will be prepared with guidance (as applicable) from NOAA Fisheries and/or CDFW. When construction is completed, the flow diversion structure will be removed in a manner that will allow flow to resume with the least disturbance to the substrate and water quality.

Impact significance after mitigation

Mitigation Measures **BR-1** through **BR-8** would reduce the amount of sediment transported to streams as a result of BMP construction to a less than significant level. The small amount of sediment that would enter streams after implementing the construction activity controls would not be expected to adversely affect any special-status aquatic wildlife species. As a result, the short-term construction-related impacts would be reduced to a ***less than significant level***. As previously noted in discussion of Impact 6-1a., the long-term impacts of actions take to comply with the General Permit would be beneficial for all special-status aquatic wildlife species.

Impact 6-2 Compliance actions could directly disturb riparian habitats, and/or special-status species therein

The only compliance actions that could directly disturb riparian habitats and/or special-status species therein are: a) soil bioengineering techniques (BMP-11 and BMP-12) implemented to reduce erosion and revegetate unstable areas (including gullies, landslides, and/or actively down-cutting or actively head-cutting stream channels); b) removal and stabilization of a stream crossing as part of a road decommissioning project (BMP-19); and/or c) construction of a stream crossing along a new storm-proofed road segment (that could be constructed to maintain property access, where a problem road segment needs to be decommissioned) (BMP-20).

Soil bioengineering techniques could be implemented at up to 10-to-20 percent of all hillslope vineyard properties (see footnote 8 below), where hillslope vineyards discharge into unstable areas; in most cases these techniques would not involve the use of heavy equipment and/or placement of rock in

channels. Construction activities at or near stream crossings that would be associated with decommissioning a problem road segment and/or construction of a new storm-proofed road segment (to maintain property access where a problem road segment is decommissioned) are only expected to occur at a very small number of hillslope vineyard properties[38].

Riparian areas that could be disturbed by compliance actions provide potential habitat for several special-status plant species and/or California red-legged frog, foothill yellow-legged frog, western pond turtle, ringtailed cat, and potential nesting areas for special-status bird species including yellow warbler, white-tailed kite, Swainson's hawk, Cooper's hawk, sharp-shinned hawk.

Absent measures to control construction activities and/or stabilize areas where earth moving and/or vegetation removal occurs, it is possible that significant disturbance of riparian habitats could occur, and/or special-status species or their habitats could be directly impacted. ***These impacts would be considered significant***.

Mitigation Measures

Upon implementation of Mitigation Measures BR-1 through BR-8 potential impacts to California red-legged frog, foothill yellow-legged frog, ringtailed cat, western pond turtle, and riparian nesting areas for special-status bird species ***would be reduced to less than significant levels***. Compliance actions occurring in riparian areas also would be subject to the terms and conditions of a Streambed Alteration Agreement issued by the California Department of Fish and Wildlife, which would also evaluate potential impacts to riparian habitats and/or all special-status animal species, and also all special-status plant species, ***which would reduce potential impacts to special-status plant species to a less than significant level.***

Impact 6-3 Noise generated by heavy equipment used to construct/install BMPs could disrupt breeding and/or nesting by special-status bird species

Nesting areas for several special-status bird species have been documented throughout the project area, as indicated in the California Natural Diversity Database, and/or as are associated with a variety of sensitive natural community types as listed in Table 6-1 and described in detail in Jones and Stokes Associates (2005). Nesting areas for most of these species are strongly associated with distinct vegetation cover types and/or ecotones (where two vegetation types or communities meet or join). Nesting areas for most of the special-status bird species are found within distinct biotic communities including a variety of wetland habitats, riparian communities, oak woodlands, forests, and/or rock outcrops/cliffs. Some of special-status bird species also nest in grasslands and/or scrublands.

In evaluating the potential for noise generated by BMP construction activities to disrupt nesting by special-status bird species, we consider the following:

a) The use of heavy equipment already occurs frequently within existing vineyards under the baseline to conduct agricultural operations (e.g., tractors are used to till soils, seed cover corps, apply soil amendments, and/or spray fertilizers, Sulphur, and pesticides). Actions taken to comply with the General Permit would reduce or maintain the same amount of heavy equipment use in vineyards because BMPs employed (BMP-1, 2, 3, 4, 5, 6, 7, 8, and 9) to comply with the General Permit either maintain or reduce tillage, maintain or reduce pesticide applications

[38] Water Board staff have reviewed farm plans and conducted field inspections of more than 100 vineyard properties within the project area, and of these, only 2 of the more than 100 properties inspected included problem road segments that would be candidates for decommissioning and/or relocation.

(BMP-22, 23), and/or would have a less than significant effect on noise generation from vineyards (BMP-21, 24, 25, and 26).

b) At up to 10 percent[39] of hillslope vineyards, detention basins could be constructed (BMP-10). Detention basins typically require an area equal to about 2-to-3% of area they receive runoff from (USEPA, 2014). In some cases, considering slope stability or other constraints, it will not be feasible to construct a detention basin within the developed footprint of a vineyard. In evaluating potential impacts, wherever a detention basin is constructed outside of the vineyard footprint, construction of these detention basins would be considered a new source of noise that could have the potential to effect nesting activities, where construction occurs within ¼ mile of a nesting site.

c) To attain the performance standards for vineyard runoff, soil bioengineering structures will be constructed at some hillslope vineyard properties to control erosion and revegetate unstable areas[40]. In most cases, soil bioengineering structures will be constructed with hand tools (BMP-11). However in a few cases, soil bioengineering structures would involve the use of heavy-equipment (BMP-12). Where these construction activities (BMP-12) occur within ¼ mile of a nesting site for a special-status bird species, they could have the potential to disrupt nesting activities.

d) At most vineyard properties, in order to meet the road-erosion performance standards that are conditions of the General Permit, some combination of BMPs would be constructed or installed including reshaping of the surface of existing unpaved roads, removal of unstable road fills, installation of single-post trash racks[41] at culvert inlets, construction of water bars, and/or installation of cross drains at seeps/springs (i.e., BMP-13, 14, 15, 16, 17, and/or 18). Construction of these BMPs constitutes a new noise source that could have the potential to effect nesting activities, where BMPs are constructed within ¼-mile of a nesting site.

e) At a small percentage of vineyard properties, problem roads with very high rates of sediment delivery to channels will be decommissioned (BMP-19) through ripping the road surface, excavating stream crossing and unstable fill, and excavating and constructing cross drains. In some cases, at these same properties a new storm-proofed road (BMP-20) also would be

[39] Detention basins would be required to achieve the performance standards for storm runoff (which apply to hillslope vineyards), typically where vineyard development involves conversion forest or wetland habitats. We estimate about 2000-of-18000 acres of existing hillslope vineyards that could be enrolled in the General Permit may have involved conversion of forested areas, and 500-of-8000 acres of projected future hillslope vineyard development that could occur within the next 20-years, may involve conversion of forest or wetland area (Napolitano, 2016). 2500-of-26,000 acres equals about 10 percent. It is likely that the actual percentage of sites where detention basins are constructed will be lower because since 2009, Napa County has required no-net increase in storm runoff (as a condition of hillslope vineyard development), and prior to this requirement, in some cases detention basins already were constructed at some hillslope vineyards, where forest conversions occurred (including large hillslope vineyards in the Mount Veeder area).

[40] Vineyard storm runoff performance standards only apply to hillslope vineyards. Based on site inspections and farm plan reviews conducted by Water Board staff at hillslope vineyard properties within the project area, we estimate at 10-to-20 percent of hillslope vineyard properties, there is one or more outlet or diversion ditch that directs vineyard runoff into a gully or an actively eroding channel, where soil bioengineering structures could be installed/constructed. At most of these sites, soil bioengineering structures would be constructed using hand tools. At a few of the eroding gullies or channels, it would be necessary to use heavy equipment to construct the soil bioengineering structures.

[41] Typically, these would be installed with hand tools and would not disrupt nesting activities.

constructed to maintain property access. Based on property inspections and farm plan reviews conducted at more than 100 vineyard properties within the project area, Water Board staff project that decommissioning of problem roads would be an uncommon BMP that would occur at 1 percent-or-less of all vineyard properties[42]. In almost all cases, decommissioned roads and/or new storm-proofed roads would include construction activities at stream crossings, which would expand the scope of environmental review and permitting. BMP-19 and BMP-20 are considered new noise sources that could have the potential to disrupt nesting activity, where these construction activities occur within ¼ mile of a nesting site.

f) All Douglas fir and/or redwood forest habitat is considered potential nesting habitat for northern spotted owl. Within the project area, most of this forest habitat is located in the Mayacamas Mountains and/or in the Howell Mountain area.

g) Compliance actions that result in significant new sources of noise will not occur in close proximity to freshwater, brackish, or tidal wetlands[43], which may provide nesting areas for several special-status species including tricolored blackbird, great blue heron, short-eared owl, western snowy plover, northern harrier, American peregrine falcon, saltmarsh common yellowthroat, California black rail, marbeled godwit, San Pablo song sparrow, long-billed curlew, whimbrel, double-crested cormorant, California clapper rail, and/or yellow-headed blackbird. Therefore, actions taken to comply with the General Permit will not interfere with nesting by any of these special-status bird species.

In summary, noise generated by heavy-equipment operation to construct or install BMPs on unpaved roads, to construct soil bioengineering structures in gullies and/or channels, and/or to construct a detention basin (outside of the developed footprint of a vineyard), where this occurs within ¼-mile or less of a nesting site for a special status bird species have the potential to disrupt nesting of special-status bird species, which is ***considered a significant impact***.

Mitigation Measures

Where BMP construction and/or installation involves the use of heavy equipment including for detention basins (BMP-10), soil bioengineering structures to control erosion in gullies and stream channels (BMP-12), decommissioning problem roads (BMP-19), and/or construction of new storm-proofed roads (BMP-20), and these project sites **overlap all or in part with aquatic or riparian habitats**, Mitigation Measure **BR-1 would apply**. Mitigation Measure BR-1 requires project proponents to apply for a Clean Water Act Section 401 permit authorization and waste discharge requirements, and to comply with the requirements thereof. Standard conditions of the Water Board CWA Section 401 permit and waste discharge requirements include the requirements to comply with the terms and conditions of the CDFW Streambed Alteration Agreement and the Section 7 consultations.

[42] Of the more than one hundred vineyard properties where Water Board staff have conducted site inspections and reviewed vineyard property farm plans that apply to the whole property including all unpaved roads, problem road segments were identified at only two properties, and at both sites, it was possible to substantially reduce road-related sediment delivery to channels by addressing diversion potential at crossings, minimizing hydrologic connectivity, and limiting vehicle traffic during the wet season. For these reasons, we conclude that decommissioning problem road segments and/or constructing new storm-proofed road segments will be a very uncommon compliance action.

[43] All of these types of wetlands occur either on the valley floor (e.g., freshwater marsh) and/or in the estuarine reach (e.g., tidal or brackish marsh) of the Napa River

Projects subject to CWA Section 401 permits also are subject to Clean Water Act Section 404 permits issued by the US Army Corps of Engineers, and also to Endangered Species Act Section 7 Consultations where species listed under the federal Endangered Species Act have the potential to occur. Where BMP construction activities overlap at all with aquatic and/or riparian habitats, they also are subject to Streambed Alteration Agreements issued by the California Department of Fish and Wildlife (CDFW), which would reduce impacts to all special-status species to a less than significant level. Standard terms and conditions of the Streambed Alteration Agreement and/or Section 7 Consultation, with regard to mitigating noise-related disruption of nesting by special-status birds, where project sites occur within ¼ mile of potential nesting habitat, would include either restricting the work window for heavy equipment use, so that it does not overlap with the nesting period (construction activities could not begin prior to August 1 or continue past October 15), or requiring that a protocol survey be conducted to determine whether special-status bird species are present, and if so, to implement appropriate mitigation measures to reduce potential impact to a less than significant level.

Upon implementation of Mitigation Measure BR-1, potential noise related impacts on nesting by special-status bird species caused by the construction of soil bioengineering structures (BMP-12), decommissioning problem roads (BMP-19), and/or constructing new storm-proofed roads (BMP-20) would be reduced to a less than significant level.

However, noise generated by heavy equipment used to construct or install BMPs on existing unpaved roads (BMPs 14-18), and/or to construct detention basins (BMP-10) outside of the footprint of a vineyard, wouldn't be controlled or reduced through Mitigation Measure BR-1 because BMP 10, and BMPs 14-18 are constructed in upland areas that don't overlap with or include wetlands, waters, or riparian areas. Hence these compliance actions are not subject to CWA permits, Section 7 Consultations, or Streambed Alteration Agreements.

Routine and recognized mitigation measures that are commonly employed by regulatory agencies to reduce noise-related impacts of these compliance actions to breeding and/or nesting activity by special-status bird species to a less than significant level include the following:

Mitigation Measure BR-9: wherever road erosion control BMPs and/or detention basins are constructed using heavy equipment, and these projects occur within ¼ -mile of Douglas fir or redwood forest habitat, construction activities shall be restricted to August 1st through October 15th to avoid overlapping with nesting periods of all special-status bird species including northern spotted owl; or if a protocol survey determines that suitable nesting habitat is unoccupied, construction activities may occur throughout the standard work window for compliance actions under the General Permit, which is June 15-October 15.

Mitigation Measure BR-10: Wherever road erosion control BMPs and/or detention basins are constructed using heavy equipment, and these projects occur within ¼-mile of any mapped sensitive natural community (that may provide potential breeding and/or nesting habitat for special-status birds) and/or there has been a documented occurrence of any special-status bird species, the work window for heavy equipment use shall be restricted to August 1st through October 15th to greatly reduce the potential for overlap with breeding and nesting periods of special-status bird species. Alternatively, if a protocol survey determines that potentially suitable nesting habitat is not present or unoccupied then construction activities may occur throughout the standard work window for compliance actions under the General Permit, which corresponds to June 15-October 15.

However, the Water Board would not have oversight of the implementation of proposed Mitigation Measures BR-9 and BR-10 as described above. The ability to require such measures is within the purview of jurisdictions with local land use approval and/or permitting authority. In all cases where compliance actions at an individual Vineyard Property meet the CEQA definition of a "Project," the local land-use authority would issue a CEQA document. In some of those cases, local land use agencies have determined that a categorical exemption applies to the action (e.g. construction of erosion control BMPs within the footprint of existing unpaved roads) or has a streamlined CEQA process in place (e.g. VESCO). Therefore, there is inherent uncertainty in the degree of mitigation that ultimately would be implemented to reduce significant impacts[44]. ***Consequently, the EIR takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that significant environmental impacts to biological resources resulting from site disturbance activities may be unavoidable***.

Impact 6.4 Detention basins and/or new storm-proofed roads could be sited in upland areas that provide habitat for special-status species and/or sensitive natural communities

As described in the evaluation of Impact 6.3, at a small percentage of hillslope vineyard properties, detention basins and/or new storm-proofed road segments could be constructed in previously undeveloped upland areas[45], which in some locations may overlap with sensitive natural communities and/or special-status species or their habitats.

The California Department of Fish and Wildlife has designated several types of natural vegetation communities as "special status natural communities" based on their high biological diversity, susceptibility to disturbance or destruction, and/or limited distribution in a local area and/or statewide (CDFW, 2010).

[44] In the Napa River watershed, construction of erosion control BMPs on existing roads typically would be exempt from permitting and/or CEQA review by the local land-use authority. However, construction of a detention basin in an environmentally sensitive area, which includes all mapped sensitive natural communities and known occurrences of special-status species, the project proponent would require a grading permit (which involves discretionary review) from Napa County, and the project also would be subject to CEQA review. As part of the CEQA review, a biological survey would be required to identify and describe resources, to evaluate potential impacts, and where impacts are significant, to implement avoidance and/or mitigation measures to reduce impacts to a less than significant level. Also, to be consistent with the Napa County General Plan, all discretionary permits must "require temporary or permanent buffers of adequate size (based on the requirements of the subject special-status species) to avoid nest abandonment by birds and raptors associated with construction and site development activities" (Napa County, 2009, Policy CON-13, g).

Within the Sonoma Creek watershed, construction of erosion control BMPs on existing roads typically would be exempt from permitting and/or CEQA review by the local land-use authority. However, construction of a detention basin involving grading ≥ 50 yd^3 would require a grading permit from the county, which includes a requirement to prepare a biological resources study to: determine the presence/absence of species listed as threatened or endangered under the state or federal Endangered Species Act, determine the impacts of the project, and incorporate avoidance and/or mitigation measures to insure that no take of a listed species occurs. This requirement would not protect bird species of special-concern from significant impacts.

[45] "Upland areas" refers to the land areas that drain into wetlands, waters, and/or riparian habitats.

In Napa County, twenty-three types of sensitive natural communities occur at locations throughout the county, many of which are in the Napa River watershed (Jones & Stokes, 2005). In addition to the twenty-three sensitive natural communities designated by CDFW, there are six other types of natural communities within Napa County that are ≤ 500 acres in extent, and therefore considered locally rare including: native grasslands; tanbark-oak alliance; Brewer willow alliance; ponderosa pine alliance; riverine; lacustrine, and tidal marsh habitats, and wet meadow grasses NFD super alliance. Similarly, as part of the environmental analysis for the Sonoma County General Plan update, sensitive natural communities have delineated throughout the county including within the Sonoma Creek watershed (Sonoma County, 2006, Figure OSRC-5i).

The Napa River and Sonoma Creek watersheds are prime locations for special-status plant species, many of which are associated with alkali, volcanic, and/or serpentine soils. Twenty-nine of the eighty-one special status plant species found in Napa County are associated with serpentine grasslands, which occur over less than ½ percent of the land area of the county (Jones & Stokes, 2005). Serpentine chapparal is another sensitive natural community type that also includes several special-status plant species. Although a large number of special-status plant species are associated with serpentine soils, all of the principal biotic communities found within the project area may contain special-status plant species (Jones & Stokes, 2005). Also, in most cases, special-status plant species only have been documented in ten-or-fewer sites (Jones & Stokes Associates, 2005).

Pallid bat, a state-listed species of special concern, forage over a variety of habitat types, and utilize oak woodlands and redwood forests for roosting areas within the project area (Jones & Stokes, 2005; CDFW, no date). Western-red-eared bat, a state-listed species of special concern, roosts in woodlands, mixed conifer forests, and/or riparian habitats (Yolo County Conservancy, 2009). Detention basin or wetland construction and/or relocation of a road segments that may occur at some hillslope vineyard properties could involve removal of trees, which in some cases could provide roosting sites for western red-bat or pallid bat[46].

The California red-legged frog (CRLF), listed as threated under the federal Endangered Species Act and also listed under the California Endangered Species Act as a species of special concern, relies on aquatic habitats and riparian areas primarily in small coastal streams and ponds, and/or man-made stock ponds for breeding and rearing, and also adjacent upland habitats during the wet season (USFWS, 2002). Critical habitat for CRLF has been designated within the project area in the American Canyon area and also the northwestern headwaters of the Sonoma Creek watershed (see, Figure 6.4). Dispersal from breeding habitats to nonbreeding habitats - which must be moist, temperate, and have good cover to protect frogs from predation (Fellers and Kleeman, 2007) - occurs during wet weather periods when CRLF may migrate up to a few miles from aquatic breeding areas to nonbreeding areas (USFWS, 2002). Nonbreeding habitats may include riparian areas, ponds, and seasonal seeps and springs (Fellers and Kleeman, 2007). Typical migration distances are a few tens-to-several-hundred meters (Bulger et al., 2003; Fellers and Kleeman, 2007) and likely dependent on site specific distances between suitable breeding and nonbreeding habitats (Fellers and Kleeman, 2007). Detention basins constructed to comply with the General Permit would be sited either within the developed footprint of a vineyard or in adjacent undeveloped upland areas. Detention basins would be designed to only pond water intermittently during the wet season (see USEPA, 2014). Therefore, potential impacts of detention basin construction (which would be subject to Mitigation Measures BR-2 through BR-8) would be less

[46] Other special-status bat species that have been documented within the project area, including Townsend's big-eared bat, roost in caves, buildings, and mines (CDFW, no date) that would not be disturbed by compliance actions.

than significant on California red-legged frog, and/or their habitat. In some cases, detention basins would function to provide additional suitable nonbreeding habitat.

Although there are no documented occurrences of California tiger salamander within the project area, habitats that support California red-legged frog typically possess all of the attributes that California tiger salamanders need to meet their life history requirements (USFWS, 2014). Critical habitat for California red-legged frog has been designated within the project area in the American Canyon area, and also in the northeastern headwaters of the Sonoma Creek watershed. California tiger salamanders are naturally associated with vernal pools and adjacent upland habitats, which they utilize for breeding (USFWS, 2014). The California tiger salamander also utilizes stock ponds and/or other modified ephemeral or permanent ponds for breeding (USFWS, 2014). The California tiger salamander, except during breeding-related dispersal which occurs in the wet season, occupies underground burrows constructed by small mammals. Burrows are located primarily in annual grasslands, oak savannahs, or oak woodlands.

Although vernal pool habitats were historically common within the project area along the Sonoma and Napa valleys, there has been 95 percent-or-greater reduction in the extent of vernal pool habitats, as a result of agricultural and urban development (Grossinger, 2012, pp. 74-75 and 78-79; Dawson et al., 2008). Although there have been no documented occurrence of California tiger salamander within the project area, the highest probability for their occurrence would be within intact vernal pool habitats and/or adjacent uplands located within the Napa and/or Sonoma valleys. In all cases, for the vineyard properties that are located within the Napa and/or Sonoma valleys, actions taken to comply with the General Permit would be located within the existing developed footprint of vineyards and/or vineyard property roads. Therefore, the EIR concludes that the potential impact of compliance actions on California tiger salamander is less than significant.

Callippe silverspot butterfly rely on patches of California native grasslands, several acres-or-more in area that include hilltops or ridge lines, and have Johnny Jump-Ups as a component species (USFWS, 2009). Johnny Jump-Ups are the native host plant, where the butterfly deposits its eggs and where caterpillars reside in the summer, winter, and spring before emerging as butterflies in May or June (USFWS, 2009; LSA Associates, 2004). There are only two documented populations of Callippe silverspot butterflies, one of which resides a few miles east of the project area (USFWS, 2009). An unknown amount of suitable native grassland may exist in the project area that could support additional Callippe silverspot butterfly populations not previously documented.

As described in the evaluation of Impact 6.3, a wide variety of special-status bird species may breed or nest in upland habitats including forests, woodlands, grasslands, and/or scrublands where detention basins and/or new storm-proofed roads could be constructed.

Where detention basins and/or new storm-proofed roads are sited in previously undeveloped upland areas,[47] habitats that are defined as sensitive natural communities and/or that provide habitat for special-status species may experience direct disturbance or be lost, ***resulting in significant impacts to several special-status and sensitive natural communities***.

[47] The total area required for detention basins is 2-to-3 percent of the 2500 acres of forested areas converted to vineyards or about 50-to-75 acres throughout the project area. However, at some of the existing vineyards (where development involved forest conversion) detention basins already have been constructed. Also, it is reasonable to conclude that it will be feasible to construct detention basins within the footprint of some existing or proposed vineyards. Therefore, the total upland area under natural vegetation cover that could be disturbed by construction of detention basins, likely is much less than 75 acres, a fraction of which would overlap with sensitive natural communities or potential habitat for special-status species.

Mitigation Measures

Detention basins or new roads constructed at sites that include upland areas, and aquatic and/or riparian habitats

Where detention basin construction (BMP-10) and/or new storm-proofed roads[48] (BMP-20) are constructed in upland areas that **overlap in part with aquatic or riparian habitats**, Mitigation Measure **BR-1 would apply**. Mitigation Measure BR-1 requires project proponents to apply for a Clean Water Act Section 401 permit authorization and waste discharge requirements, and to comply with the requirements thereof. Projects subject to CWA Section 401 permits also are subject to Clean Water Act Section 404 permits issued by the US Army Corps of Engineers, and also to Endangered Species Act Section 7 Consultations where species listed under the federal Endangered Species Act have the potential to occur. Where BMP construction activities overlap at all with aquatic and/or riparian habitats, they also are subject to Streambed Alteration Agreements[49] issued by the California Department of Fish and Wildlife (CDFW), **which would reduce impacts to all special-status species and all sensitive natural communities** to a less than significant level.

Detention basins constructed entirely within upland areas

Although detention basins constructed entirely with upland habitat areas, would be subject to waste discharge requirements issued by the Water Board that would be conditioned to protect water quality and beneficial uses, such projects would not be subject to CWA Section 401 and/or CWA 404 permits; Section 7 consultation(s); and/or a Streambed Alteration Agreement. Therefore, where detention basins are constructed entirely within upland areas, the Water Board would need to rely on other public agencies with regulatory jurisdiction to condition these projects to protect special-status species and/or sensitive natural communities that occur within or rely upon upland habitats (including grasslands, scrublands, woodlands, and forest habitats) as needed to avoid significant impacts to these biological resources.

Routine and recognized mitigation measures that are commonly employed by regulatory agencies to reduce impacts of these compliance actions to all special-status species and/or sensitive biotic communities to a less than significant level include the following:

Mitigation Measure BR-11: Preparation of a biological inventory of site resources by a qualified biologist prior to ground disturbance or construction. If protected species or their habitats are present, comply with applicable federal and state endangered species acts and regulations. Ensure that important fish or wildlife movement corridors or nursery sites are not impeded by project activities

However, the Water Board would not have oversight of the implementation of proposed Mitigation Measure BR-11 as described above. The ability to require such measures is within the purview of jurisdictions with local land use approval and/or permitting authority. In all cases where compliance actions at an individual Vineyard Property meet the CEQA definition of a "Project," the local land-use authority would issue a CEQA document. In some of those cases, local land use agencies have determined that a categorical exemption applies to the action (e.g. construction of erosion control

[48] In all cases, we conclude that new-storm proofed roads would overlap at least in part with stream and riparian habitats.

[49] Standard conditions of the Water Board CWA Section 401 permit and waste discharge requirements include the requirements to comply with the terms and conditions of the CDFW Streambed Alteration Agreement and the Section 7 consultations.

BMPs within the footprint of existing unpaved roads) or has a streamlined CEQA process in place (e.g. VESCO). Therefore, there is inherent uncertainty in the degree of mitigation that ultimately would be implemented to reduce significant impacts. ***Consequently, the EIR takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that significant environmental impacts to biological resources resulting from site disturbance activities may be unavoidable***.

Impact 6.5: Compliance with the General Permit at vineyard properties would not 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.

At almost all Vineyard Properties enrolled under the General Permit, compliance actions would not overlap with and/or affect wetlands. At a few Vineyard Properties: a) problem roads may need to be decommissioned (BMP-19), which would include excavation and removal of road crossings over stream channels; b) new storm-proofed roads may be constructed (BMP-20), which would include construction of new road crossings over stream channels; and/or c) detention basins (BMP-10) may need to be constructed, and at a few of these properties the only feasible location for construction could be within a wetland area. Also, soil bioengineering projects (BMP-11 and BMP-12) could be constructed in gullies and/or channels to control erosion where Hillslope Vineyards have increased bed and/or bank erosion, as result of significant increases in runoff.

In the cases described above, if BMP construction overlapped with federally protected wetlands, there could be significant impacts.

Mitigation Measures

Mitigation measures BR-1 (the requirement to obtain and comply with the terms and condition of a Clean Water Act Section 401 permit and waste discharge requirements) and BR-2 through BR-8 (construction activity controls) all would apply to any BMP construction or maintenance project that overlapped at least in part with a federally protected wetland.

For the reasons stated above in discussion of Impact 6.1b through 6.3, the requirement to apply for a Clean Water Act Section 401 permit authorization and waste discharge requirements and to comply with the requirements thereof (**BR-1**), and the requirements to comply with construction activity controls (**BR-2** through **BR-8**), compliance with the General Permit is not expected to have a substantial adverse effect on federally-protected wetlands. **Therefore, the potential impact of actions taken to comply with the General Permit on federally protected wetlands would be less than significant**.

Impact 6.6: Compliance with the General Permit at vineyard properties is not expected to 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 native wildlife nursery sites.

The only compliance actions that could change fish or wildlife movement are construction of BMP-19 (decommissioning problem roads), and/or BMP-20 (construction of a new storm-proofed road segment). In both cases, road crossings are required to be storm-proofed, which includes meeting NOAA Fisheries and the California Department of Fish and Wildlife's fish passage criteria (see Table 2-2). **Therefore the impact would be less than significant**.

Also, we note that although the impact would be less than significant, these compliance actions also would be subject to **Mitigation Measures BR-1** through **BR-8** (which are described in detail above).

Impact 6.7: Compliance with the General Permit at vineyard properties is not expected to conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance.

Actions taken to comply with the General Permit would not conflict with any local policies or ordinances protecting biological resources such as trees, or with any adopted Habitat Conservation Plan, Natural Community Plan, or other approved local, regional or state habitat conservation plan. There is no evidence to suggest that projects proposed to comply with the proposed General Permit would conflict with these plans.

Impact 6.8: Compliance with the General Permit at vineyard properties is not expected to conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan.

Actions taken to comply with the General Permit would not conflict with any known Habitat Conservation Plans, Natural Conservation Community Plans, or any approved local, regional, or State habitat conservation plans. By reducing elevated level of fine sediment delivery to stream channels, and/or attenuating significant increases in storm runoff (where these occur at vineyard properties), compliance with the General Permit would improve aquatic and riparian habitat conditions.

References

Ashton, D.T., A. J. Lind, and K.T. Schlick. (1997). Foothill yellow-legged frog natural history. USDA Forest Service Redwood Sciences Lab: Arcata, CA.

Bulger, J.B., N.J. Scott, and R.B Seymour. (2003). Terrestrial activity and conservation of adult red-legged frogs *Rana aurora draytonii* in coastal forests and grasslands. Conservation Biology (110) (2003): 85-95.

California Department of Fish and Wildlife. (no date). Wildlife Habitat Relationships, Life History Account, Western Pond Turtle. CFDW: Sacramento, CA.

California Department of Fish and Wildlife. (no date). Wildlife Habitat Relationships, Life History Account, Pallid Bat. CFDW: Sacramento, CA.

California Department of Fish and Wildlife. (no date). Wildlife Habitat Relationships, Life History Account, Townsend's Big-Eared Bat. CFDW: Sacramento, CA.

California Department of Fish and Wildlife. (2014). Mitigated Negative Declaration, prepared for the 2015 Fisheries Grant Restoration Program, Appendix B, Mitigation Measures, Monitoring and Reporting Program. CFDW, Fisheries Grant Restoration Program: Sacramento, CA.

Cooper, M.L., Klonsky, K.M., and R.L. De Moura. (2012). Sample costs to establish a vineyard and produce winegrapes (Cabernet Sauvignon), North Coast Region, Napa County. UC Cooperative Extension. University of California at Davis, Department of Agricultural and Resource Economics: Davis, CA.

Dawson, A., M. Salomon, A. Whipple, and R. Grossinger, 2008. An Introduction to the Historical Ecology of the Sonoma Creek Watershed. Sonoma Ecology Center, Sonoma, CA and San Francisco Estuary Institute, Richmond, CA.

Dietrich, W.E. et al. (2004). The use of airborne laser swath mapping data in watershed analysis to guide restoration priorities: the Napa River watershed study. EOS, Transactions, Fall Meeting 2004, Abstract 85(47).

Fellers, G.M and P.M. Kleeman. (2007). California red-legged frog (*Rana draytonii*) movement and habitat use: implications for conservation. Journal of Herpetology, Vol 41, No. 2: 276-286.

Grossinger, R.. (2012). Napa Valley historical ecology atlas, exploring a hidden landscape of transformation and resilience. UC Press: Berkeley, CA. pp. 74-75, and pp. 78-79.

Jones & Stokes Associates. (2005). Napa County Baseline Data Report, Chapter 4, Biological Resources. Jones & Stokes: Oakland, CA

Lisle, T.E. and S. Hilton. (1999). Fine bed material in pools of natural gravel-bed channels. Water Resources Research Vol. 35 (4): 1291-1304.

LSA Associates. (2003). Public Draft Habitat Conservation Plan for the Solano County Water Agency, Natural Communities and Species Accounts, Callippe Silverspot Butterfly. LSA Associates: Berkeley, CA.

Martin, B.A, M.K. Saiki, and D. Fong. (2009). Habitat requirements of endangered California freshwater shrimp (*Syncaris pacifica*) in Lagunitas and Olema creeks, Marin County, California, USA. Journal of Crustacean Biology 29 (4): 595-604.

Napa County. (2007). Napa County General Plan Update, Final EIR, Preferred Plan. County of Napa, Department of Planning, Building, and Environmental Services, Planning Division: Napa, CA.

Napa County Agricultural Commissioner, 2013. Agricultural Crop Report for 2012.

Pacific Watershed Associates. (2003a). Sediment source assessment, a component of a watershed management plan for the Carneros Creek watershed. Pacific Watershed Associates: Arcata, CA.

Pacific Watershed Associates. (2003b). Sediment source assessment, a component of a watershed management plan for the Sulphur Creek watershed. Pacific Watershed Associates: Arcata, CA.

Pacific Watershed Associates. (2007). San Geronimo upland inventory and assessment, Marin County Open Space District, Marin County, CA.

Sonoma County. (2006). Sonoma County General Plan 2020, General Plan Update, Draft Environmental Impact Report. County of Sonoma, Permit and Resource Management Department: Sonoma, CA.

Sonoma County, 2010. Sonoma County General Plan 2020, Open Space and resource Conservation Element, Figure OSRC-5i, Open Space Map, Sonoma Valley.

Sonoma County Agricultural Commissioner, 2013. Best management practices for agricultural erosion and sediment control. County of Sonoma: Santa Rosa, CA.

Suttle, K.B., M.E. Power, J.M. Levine, and C. McNeely. (2004). How fine sediment in riverbeds impairs growth and survival of juvenile salmonids. Ecological Applications 14 (4): 969-974.

USEPA. (2014). Division of Water, Best Management Practices, Dry Detention Basins. As accessed on 28 October 2015 at http://water.epa.gov/polwaste/npdes/swbmp/Dry-Detention-Ponds.cfm. US Environmental Protection Agency, Division of Water: Washington, D.C.

US Fish and Wildlife Service. (2002). Recovery plan for the California red-legged frog. Region 1, US Fish and Wildlife Service: Portland, OR.

US Fish and Wildlife Service. (2009). Callippe Silverspot Butterfly, Five-Year Review: Summary and Evaluation. US Fish & Wildlife Service: Sacramento, CA.

US Fish and Wildlife Service. (2014). California Tiger Salamander, Central California Distinct Population Segment, Five-Year Review: Summary and Evaluation. US Fish & Wildlife Service: Sacramento, CA.

Water Board. (2009a). Napa River Sediment TMDL and Habitat Enhancement Plan, Staff Report.

Water Board. (2014). Initial Study for General Waste Discharge Requirements for Vineyard Discharges in the Napa River and Sonoma Creek Watersheds. Water Board: Oakland, CA.

Water Board, 2015. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Incorporating all amendments approved by the Office of Administrative Law, as of March 20, 2015. Water Board: Oakland, CA.

Weaver, W., E. Weppner, D. Hagans, 2014. Handbook of Forest, Ranch, and Rural Roads, a Guide for Planning, Designing, Constructing, Reconstructing, Upgrading, Maintaining, and Closing Wildland Roads. Mendocino RCD: Ukiah, CA. http://mcrcd.org/wp-content/uploads/Handbook_for_Forest_Ranch&Rural_Roads.pdf

Yolo County Conservancy. (2009). Yolo Natural Heritage Program, Species Description and Life History, Western Red Bat.

7. CULTURAL RESOURCES

This section describes existing conditions for cultural and paleontological resources within the Project area, including applicable plans and policies, and evaluates the potential impacts to these resources resulting from project implementation, and develops mitigation measures to reduce these impacts.

The Napa River and Sonoma Creek watersheds constitute the boundary of the Project area. This territory historically consisted of valleys and foothills with plentiful resources and a temperate climate, and as described in detail below, was home to many thousands of Native Americans stretching back for thousands of years. The ethnographic record of the region shows the cultural complexity at the time of European-American contact.

7.1. Regional Setting

California Prehistory

It is generally believed that human occupation of California began at least 10,000 years before present (BP). The archaeological record indicates that between approximately 10,000 and 8,000 years BP, a predominantly hunting economy existed, characterized by archaeological sites containing numerous projectile points and butchered large animal bones. Animals that were hunted probably consisted mostly of large species still alive today. Bones of extinct species have been found, but cannot definitely be associated with human artifacts. A lack of deep cultural deposits from this period suggests that groups included only small numbers of individuals who did not often stay in one place for extended periods (Wallace, 1978).

Around 8,000 years BP, there was a shift from hunting toward a greater reliance on plant resources, as evidenced by a much greater number of milling tools (e.g., metates and manos) for processing seeds and other vegetable matter. This period, sometimes referred to as the “Millingstone Horizon,” extended until around 5,000 years BP (Wallace, 1978). An increase in the size of groups and the stability of settlements is indicated by deep, extensive middens at some sites from this period (Wallace, 1978).

Archaeological evidence indicates that reliance on both plant gathering and hunting continued as in the previous period, with more specialized adaptation to particular environments in sites dating to after about 5,000 years BP. Mortars and pestles were added to metates and manos for grinding seeds and other vegetable material. Flaked-stone tools became more refined and specialized, and bone tools were more common. During this period, indigenous peoples from the Great Basin (i.e., almost all of the present-day states of Utah and Nevada, as well as substantial portions of Oregon, Idaho, Wyoming and Colorado, and smaller portions of Arizona, Montana, and California) began entering southern California. Regional subcultures also started to develop, each with its own geographical territory and language or dialect (Kroeber, 1925; McCawley, 1996; Moratto, 1984). These were most likely the basis for the groups encountered by the first Europeans during the eighteenth century (Wallace, 1978). Despite the regional differences, many material culture traits were shared among groups, indicating a great deal of interaction (Erlandson, 1994). The introduction of the bow and arrow into the region sometime around 2,000 years BP is indicated by the presence of small projectile points (Wallace, 1978; Moratto, 1984).

Regional Prehistory

Research by Nels C. Nelson in 1909 and Jeremiah B. Lillard, Robert F. Heizer, and Franklin Fenega in 1939, indicated that human occupation started around 12,000 BP in the central California region (Elsasser 1978). In 1948, Richard K. Beardsley developed a comprehensive Central California

Taxonomic System (CCTS), which attempted to correlate archaeological cultures in the Sacramento and San Joaquin Delta with those in the Bay Area. In the 1970s, new research by David A. Frederickson led to refinements of the prehistoric chronology of the Napa and Sonoma regions (Fredrickson, 1974).

7.2. Ethnography

At the time of European contact, the Napa River and Sonoma Creek watersheds overlapped the traditional territories of multiple tribal communities. Ethnographic data from this time period indicate that the largest tribal communities within the watershed areas consisted of the Patwin, Wappo, and the Coast Miwok.

Patwin

Portions of the Napa River watershed are located in the territory occupied by the Penutian-speaking Hill Patwin. The Patwin territory included both the River and Hill Patwin and extended from the southern portion of the Sacramento River Valley to the west of the Sacramento river, and from the town of Princeton south to San Pablo and Suisun Bays. The Hill Patwin territory included the lower hills of the eastern Coast Range mountain slope (Long, Indian, Bear, Capay, Cortina, and Napa Valley). Between there and the foothills, the grassy plains were largely unsettled, used mainly as a foraging ground by both valley and hill groups (Johnson, 1978). Patwin pre-contact population numbers are not precise, but Kroeber (1976) estimates 12,500 for the Wintu, Nomlaki, and Patwin groups. These numbers reflect groups prior to the 1833 malaria epidemic, which inflicted an approximate 75 percent mortality rate on tribal communities in and around the Sacramento and San Joaquin river valleys (Cook, 1995). The "Southern Patwins" lived between what is now Suisun, Vacaville, and Putah Creek. By 1800 they had been forced by Spanish and other European invaders into small tribal units: Ululatos (Vacaville), Labaytos (Putah Creek), Malaca (Lagoon Valley), Tolenas (Upper Suisun Valley) and Suisunes (Suisun Marsh and Plain).

Wappo

The area surrounding the northern Napa River was occupied by the Yukian-speaking Wappo (Sawyer, 1978). The Wappo territories were geographically separate from other Yukian speaking groups. This isolation may explain the divergence of the Wappo language from the other Yukian dialects.

The Wappo were among the first groups to occupy the Napa Glass Mountain area beginning around 4,000 BP (Heizer, 1953; Elmendorf, 1963). The Wappo traveled heavily outside of their territory, even making annual trips to the Pacific Ocean (Sawyer, 1978). The Wappo traded with their non-Yukain speaking neighbors and were particularly known for their decorated basketwork, which is currently considered some of the best in the world (Sawyer, 1978).

Typical Wappo sociopolitical units consisted of a village, containing a dozen or so households, located along a creek or a water source. Subsistence depended heavily on a mixture of freshwater and saltwater crustaceans, fish, and reptiles. In addition, they harvested a variety of local plant foods including acorns, buckeye and local roots. The Wappo also harvested seaweed during their trips to the coast, which they dried and brought back to villages to add flavor to their food (Sawyer, 1978).

In 1854, the Wappo of the Russian River Valley, whose population is believed to have included Wappo from the Napa County area, were moved to the reservation in Mendocino. The Wappo population in the Napa River watershed area in 1855 was estimated at over 500 but by 1856 nearly half of the population

had died (Sawyer, 1978). The 2010 U.S. Census reported a population of 151 for Wappo Native Americans currently living in California.

Coast Miwok

The western portion of the Sonoma Creek watershed is in the territory of the Coast Miwok. Coast Miwok territory stretched from Duncan's Point in the north, to Sausalito in the south, and from Sonoma in the east, to the Pacific Ocean (Kelly, 1978). The Coast Miwok language is considered one of the California Penutian languages.

Subsistence of the Coast Miwok consisted of a wide variety of plants, seafood, and game found near the sea as well as inland. Due to the Miwok's diversified terrain, they were well-rounded in game hunting, fishing, and foraging, adapting to what was plentiful at different times of the year. During the winter months, there was a heavy reliance on geese and dried stored foods such as acorns, kelp, and seeds. Salmon running in the winter were also caught using circular dip nets, weirs, and spears. During the summer, larger game such as deer, bear and elk were hunted in the hills. Summer also gave way to plant gathering, which was used to offset the winter months when large game was scarce (Kelly, 1978).

The Coast Miwok population, according to Kroeber, has always been small, at an average of 1,500 people during aboriginal times. Like the other tribal groups in the area, the Coast Miwok were forced to relocate to the Mendocino and Round Valley reservations in the 1950s. By 1851, their population had plummeted to about 250 and by 1920 it was down to five. The drastic population decrease coincided with the decreases in all California Indian populations during early Euro-American incursion. Some remaining coastal Miwok people, along with the Southern Pomo group, belong to the Federated Indians of Graton Rancheria, who successfully attained tribal federal status from Congress in 2000.

7.3. Early History

The effect of Spanish settlement and establishment of missions in California marks the beginning of a devastating disruption of native culture, with forced population movements, loss of lands and territory (including traditional hunting and gathering locales), enslavement, and decline in population numbers of native inhabitants from disease, malnutrition, starvation, and violence.

The first European to visit California was Spanish maritime explorer Juan Rodriguez Cabrillo in 1542. Cabrillo was sent north by the Viceroy of New Spain (Mexico) to look for the Northwest Passage. The English adventurer Francis Drake visited the Miwok Native American group at Drake's Bay or Bodega Bay in 1579.

Colonization of California began with the Spanish Portolá land expedition. The expedition, led by Captain Gaspar de Portolá of the Spanish army and Father Junipero Serra, a Franciscan missionary, explored the California coast beginning in San Diego and arriving in the Monterey Bay Area in 1769. As a result of this expedition, Spanish missions to convert the native population, presidios (forts), and pueblos (towns) were established.

After Mexico became independent from Spain in 1821, what is now California became the Mexican province of Alta California with its capital being established in Monterey. The Mexican government closed the missions in the 1830s and former mission lands, as well as previously unoccupied areas, were granted to retired soldiers and other Mexican citizens for use as cattle ranches. According to historical maps, Napa, Sonoma, and Solano counties each contained several historical ranchos. Many of the ranchos in the watershed areas were granted by Mexican Governor Mariano Guadalupe Vallejo.

Vallejo was responsible for several changes to the watershed areas prior to the establishment of California. Vallejo founded the town of Sonoma and oversaw the secularization of Mission San Francisco Solano. He also was granted the Rancho Petaluma by Governor Jose Figueroa in 1834.

Eventually, the Bear Flag Revolt of 1846 ended the Petaluma Rancho's period of prosperity under General Vallejo. The Mexican Period concluded in 1848.

Mining

In 1848, shortly after California became a territory of the United States, gold was discovered at Sutter's Mill, a lumber mill at Coloma on the South Fork of the American River (Marshall, 1971). That same year, the Mexican-American War ended and marked the beginning of the American Period (1848 to present).

Mining is an early, yet relatively minor, historical theme in the Napa River and Sonoma Creek watersheds and in the surrounding lands. The region was placer mined during the Gold Rush, though not as extensively as in the foothills of the Sierra Nevada. These activities were often initially concentrated along drainages and riverbanks (such as Napa River and Sonoma Creek). Ground sluicing, a technique which uses water (not under pressure) to break down gold-bearing gravels, could have occurred any time from the 1850s up until the beginning of the 20th century. Low-pressure hydraulic mining also took place in the watershed areas.

Despite the occurrence of early gold mining in the Napa River and Sonoma Creek watershed areas, the efforts showed little success. The only notable successful mining in the watershed areas was quicksilver mining. Miners discovered mercury ore areas (cinnabar deposits) on the northern slope of Mount St. Helena in the late 1850s. By 1861, mining claims and several cinnabar mines in the Napa River watershed were developed to produce mercury, also referred to as "quicksilver" because of its natural liquid form. This region continued to serve as one of California's main quicksilver producers through the end of World War I (Yerger, 2013).

Ranching and Agriculture

Ranching and farming have been dominant economic forces in the Napa River and Sonoma Creek watersheds. Expansive grasslands, annual winter rains, and unending miles of land made cattle ranching a profitable business. Prior to the Gold Rush, cattle were historically raised for hides and tallow. At the onset of the Gold Rush, however, cattle were used to supply the new influx of miners with fresh meat. Cattle became a significant commodity in California as prices jumped, from $4.00 per head prior to the Gold Rush, to several hundred dollars per head for the highest quality steer by 1849 (Jelinek 1982). This new booming industry required significant tracts of land to raise crops for feed and livestock.

During the 1850s, cattle were primarily raised using free-range methods on large open ranchos. Cattle ranching moved from the free-range style of the ranchos to the European style of feedlots and fenced areas within the decade of the Gold Rush, when competition for land was fierce. A "no-fence" law was passed in 1872, which made ranchers responsible for the damages caused by their livestock if they were unfenced (Jelinek, 1982). This law and the other restrictions on ranching combined to virtually end the cattle industry in the area by the 1860s. By the 1970s, raising livestock in Napa and Sonoma counties no longer consisted of vast cattle ranches, but instead was replaced with smaller dairies.

The earliest agriculture in the watershed area began during the rancho period, nearly a decade before the Gold Rush, with the development of wheat farms. Napa and Sonoma county farmers utilized new technologies such as the American plow (1846), the fanning-mill (1846), and the threshing machine

(1852), to grow the farming industry in the area. In addition, many miners were left with nothing after the initial rush to the gold fields ended. These miners quickly took up claims on public land, previously held by Mexican titles, and gradually started building their own wheat farms. Eventually, the production of wheat grown in California crowded out the need for imported grain (Napa County, 2007).

After California was brought into the United States, the large ranchos started breaking up and developed into smaller farms and ranches and agricultural production significantly increased. The Napa River watershed area was used to grow a diverse selection of products including hops, raisins, mulberry trees to produce silk, rice fields, and even tea. In the Sonoma Creek watershed area, fruit orchards were common and included apples, cherries, apricots, peaches, pears, and plums. Other crops throughout the Sonoma Creek watershed area included tomatoes, olives, almonds, and walnuts. Despite these other agricultural endeavors taking place in Napa and Sonoma County, much of the agricultural production in the area still consisted of wheat, and Napa County was the second largest wheat producing county in California in 1889 (King, 1967).

Agricultural production was further aided by the expansion of major competing railroads and the advent of the refrigerated railroad car by the early 20th century. As orchard crops from Napa and Sonoma counties were sold throughout the United States and world markets, fruit quickly became one of the region's most valuable cash crops. Wheat prices slowly declined and the vast acreages of wheat fields were subdivided for use with other crops (King, 1967).

Viticulture

Although the earliest agriculture of the two watershed areas consisted primarily of wheat production, it was the transition into viticulture, rather than wheat and other products that was the area's most profitable agricultural endeavor. Generally, the California mission system is responsible for creating the wine industry in the two watershed regions. Grapevines were planted and grapes grown first for the production of sacramental wine. Mission wine, however, was never produced on any large scale and was primarily restricted to mission use. Commercial wine production in the Sonoma Creek watershed area didn't take root until the 1850s (Jones and Stokes, 2005).

The first successfully transplanted wine grapes from Europe were grown in Sonoma County directly within the Sonoma Creek watershed area. Hungarian immigrant Colonel Agoston Haraszthy established what became known as the Buena Vista ranch in 1856, employing Chinese workers to dig extensive tunnels into the ranch's hillside, where he stored thousands of gallons of wine. He planted 86,000 vines and rooted 462,000 cuttings in his nursery with 8,000 mission vines. By 1857, Haraszthy had established 165 different varieties of wine grapes. The Buena Vista ranch is located within the Sonoma Creek watershed northeast of the City of Sonoma (Sonoma County Master Gardeners, 2014).

The Sebastiani Winery is another famous historical winery located in the Sonoma Creek watershed. The Sebastiani Winery was originally a vineyard of the Mission San Francisco Solano, originally planted in 1825. Many prizewinning wines were produced from the vineyard after the mission was secularized in the 1830s by General Mariano Vallejo. Around 1900, Samuele Sebastiani purchased the original vineyard, located within the City of Sonoma, and continued to produce wine under the name Sebastiani Vineyards and Winery (Sonoma County Master Gardeners, 2014).

The earliest known grape vine planted in the Napa River watershed is credited to George Yount, who planted table grapes in 1838. Yount built a homestead in the Napa Valley, but his wine production was very small scale. In 1859, Charles Krug, one of the most prominent early wine producers in the Napa River watershed area, established a reputation as a wine maker by producing several thousand gallons of wine in Napa, at St. Helena, and in Yountville, at different property owners' vineyards. He started

building a stone wine cellar north of St. Helena in 1868, and continued adding to it until finished in 1884, making it a center of the popular Napa wine industry (Jones and Stokes, 2005).

The 1870s was a decade of significant growth in viticulture for the Napa area. One major reason was the increase in the use of Chinese laborers. Around this time, many wine cellars were built that provided constant temperature, allowing the wine to mature evenly, thus improving taste. Some famous wineries that were started in the 1800's that still exist within the Napa River watershed area include Hanns Kornell cellars and Frank-Rombauer cellars at Larkmead, Christian Brothers, Beringer Winery, Chateau Montelena Winery, Schramsberg Vineyard, Beaulieu Winery, and Inglenook Winery, now known as Niebaum-Coppola (Napa County, 2007).

By the 1870s and 1880s, the wine industry grew exceedingly large for the market, causing the product to be extremely overproduced in Napa Valley. The overproduction led to poor quality wine products. In order to address these challenges, many Napa Valley wine producers removed old or diseased vines and extended their vineyards into the hillier terrain where the grapes would escape the valley frost. The hills along the Napa and Sonoma creeks provided perfect terrain for these vineyards to grow. By the end of the 1880s, several varieties of wines were produced in the two watershed regions including zinfandel, cabernet sauvignon, cabernet franc, and merlot (Sonoma County Historical Society, 2014).

The wine production within the two watershed areas took a substantial blow when a phylloxera infestation hit the vineyards in the 1890s. The phylloxera, an insect that feeds on the roots of grapevines, caused production of wine to decrease from about five million gallons in 1890 to about two million gallons in 1892. Despite the major economic hit to the industry, the use of resistant grapevine rootstock successfully warded off the infestation to a manageable level and the wine industry recovered by the mid-1890s (Jones and Stokes, 2005).

The phylloxera infestation, however brief, did have a lasting effect on the agricultural industry of the Napa River and Sonoma Creek watershed areas. When the wine industry decreased during the early 1890s, other agricultural industries, particularly fruit-growing orchards and hops fields, responded by increasing production. In the Sonoma Creek Watershed area, the rich floodplains allowed hops to become one of the area's major crops. The seasonal flooding from the watershed, once a significant disadvantage for certain agricultural industries, assisted with hops production. Many grapevine growers transitioned to growing hops during the phylloxera outbreak and were so successful that, by 1899, Sonoma was a world leader in hops production (Jones and Stokes, 2005).

Despite the increase in these agricultural endeavors, the wine industry remained the dominant economic industry of the two watersheds. The wine industry in the area has survived several catastrophic events. The 1906 San Francisco earthquake destroyed California's transportation facilities in the Bay Area, including wine shipping and trading centers, and caused millions of gallons of wine to be destroyed. Just as the wine industry in the area was beginning to recover, Prohibition was enacted in 1920. Few viticulturists in the Napa River and Sonoma Creek watershed area survived this period. The few that did survive devised creative ways to produce and sell their wine, including producing limited amounts for legal purposes such as medicinal, sacramental, or cooking purposes. The wine industry eventually recovered, and today the two watersheds are well known for their vineyards and wines (Sonoma County Historical Society, 2014).

Transportation

The Napa River acted as a primary transportation system during the earliest years of growth and development in the Napa River watershed area. Prior to the construction of the railroads, the river supported commerce along the waterfront years before the major cities developed around it. The Napa

River flows into San Pablo Bay, which leads directly through San Francisco, connecting with the ports along the Pacific Ocean.

One of the earliest developments along the Napa River was the establishment of a steamboat landing in 1847. The landing was located in the area of what is now Brown Street along the Napa River in downtown Napa. The location was at the uppermost point of large ship river navigation and quickly became the transportation center for travelers and the sale of agricultural, commercial, and industrial goods and supplies. Despite the construction of the landing, the large ships from San Francisco could not navigate the Napa River north beyond the landing point. Eventually, in 1850 a smaller steamboat, named the “Dolphin”, navigated the Napa River from San Francisco and was shortly followed by the use of many smaller river ferry boats. The use of the river ferry and steamboats greatly influenced the growth of Napa as freight and passenger traffic were carried by these boats from the ports of San Francisco to the Napa area. A series of steamboats connected Napa with San Francisco between the 1850s and the early 1870s, around the establishment of the Napa Valley Railroad (King, 1967).

Sonoma Creek also flows into San Pablo Bay and is one of the principle drainages of Sonoma County. The creek, however, is too small to allow adequate room for ship or steamboat transportation. Due to its small size, Sonoma Creek could not be used to the extent that the Napa River was used as a commercial route for transporting travelers and supplies. Therefore, the Sonoma Creek watershed area was slower to develop than the Napa River watershed area until the establishment of the railroads in the area (Sonoma County Historical Society, 2014a).

One of the most significant developments in the Napa River and Sonoma Creek watershed areas was the establishment of the Napa Valley Railroad (NVRR). The NVRR was approved for construction by a voter-passed bill in 1864 that issued $225,000 in bonds to be sold for the construction of the railroad. The railway was completed from Soscol to Napa in 1865, and reached St. Helena and Calistoga in 1868. At Calistoga, the NVRR Depot was built that same year. The Depot is still located in town and is listed on the National Register and is a California Historical Landmark. The NVRR, however, declined as an independent company and was eventually sold to the California Pacific Railroad during a foreclosure in 1869 (Gregory, 1912).

At the turn of the century, another railroad came to the Napa Valley. The Vallejo, Benicia and Napa Valley Railroad Company were incorporated in 1902 for the purpose of constructing an electric railroad from Benicia through Vallejo and into the Napa Valley. The electric railroad was a success, largely as a commuter railroad, operating six round-trip services per day in conjunction with a steamboat service. The line was so popular that another similar railroad, the San Francisco, Vallejo, and Napa Valley Railroad, was constructed in 1908 and operated between St. Helena and Vallejo. This railroad had the capacity of over sixty people and operated at a high enough speed that over thirty train cycles per day were maintained. This railroad further reorganized and expanded in 1911, extending past St. Helena to Calistoga (Gregory, 1912).

The Napa Valley Railroad allowed farmers and viticulturists to sell their products outside of local markets and distribute them nationwide, utilizing the ports of San Francisco and connection with the cross-country railroad system. In addition, the electric commuter train system easily transported people from the cities of San Francisco to the watershed areas, which greatly assisted economic growth.

7.4. Historic Communities of the Napa and Sonoma Watersheds

Napa

Nathan Coombs designed the layout of Napa City in 1847 Mr. Coombs picked a spot at the northernmost navigable point of the Napa River for the town's location. The first city government was formed in 1850. The construction of the Napa Valley Railroad brought rapid growth to the town, which had a population approaching 7,000 by the early 1870s (King, 1967). In 1875, the Napa State Hospital opened. The California Gold Rush of the late 1850s expanded Napa City, and the cattle ranching and lumber industries expanded during this time. Sawmills in the valley were in operation, supplying timber that was shipped out on the Napa River to San Francisco and other destinations.

In 1858, the great silver rush began in the Napa Valley. Many mines were in operation during this period, the most famous being the Silverado Mine. The first wave of foreign laborers from China arrived in California and in Napa County to work the mines, taking on the manual jobs needed to build the area's infrastructure. Around this time, concerns over Chinese labor led to the passing of the 1882 Chinese Exclusion Act by U.S. Congress. The need for additional labor to expand commerce changed the source of labor to Southern Europeans who signed contracts with shipping companies for passage to work in Napa County silver mines. While silver mining was not successful, it led to the discovery of red cinnabar, an ore that contains quicksilver or mercury. Mercury was marketable and was used by gold miners to extract gold from ore. Quicksilver mining was expensive and few mines operated longer than six years. By the 1890s, most quicksilver mines ceased operations.

By the 20th century, Napa had become the primary business and economic center for the Napa Valley. As agricultural and wine interests developed in the Valley, light industry, banking, commercial and retail activity gained prominence in the City of Napa.

Although dairy products, various crops, and sheep continued to be produced and raised in Napa County throughout the 20th century, its reputation as a world-class wine-growing region continued to grow. Today, agricultural pursuits other than viticulture are minimal throughout the area; however vineyards continue to expand, further establishing wineries and their support industries as the economic foundation in Napa County. Today Napa City is predominantly known as one of the main wine producers in California and boasts a population of approximately 70,000 people (City of Napa n.d.).

Sonoma

In 1823, Father Junipero Sera founded the Mission San Francisco Solano de Sonoma, the only mission founded after Mexican independence. Sonoma was recognized as a city in 1835. Future Governor Mariano Vallejo led the transition from a mission-based community into a Mexican Pueblo with a central plaza and street grid. In 1846, Sonoma was at the center of the short-lived Bear Flag rebellion against Mexico. The town was named the capital of the Bear Flag Republic for a period of 25 days. The Bear Flag Republic ended when California was annexed by the United States. During the early American period, Sonoma was named the county seat and was incorporated as a U.S. city in 1883 (City of Sonoma n.d.). In 1884, Sonoma was replaced by Santa Rosa as the county seat, despite objections from prominent citizens such as Vallejo. Sonoma calls itself the birthplace of California's wine industry (Sonoma Valley Visitor's Bureau, 2012). Grapes were planted in the community of Sonoma by Franciscan Friars as early as 1824. Today, Sonoma is one of the premier wine producing regions in the country.

Calistoga

Settlers first came to the Calistoga region in the 1840s in order to take advantage of natural hot springs thought to have healing qualities. In 1872, Samuel Brannan purchased 2,000 acres of land around the springs and founded The Calistoga, a hot springs resort designed to rival Saratoga Springs in New York. In order to facilitate travel to his resort, Mr. Brannan and a group of businessmen in the area built a railroad that would bring passengers into the upper Napa Valley. In the 1920's, while drilling a cold water well, Guiseppe Musante, a local candy store owner struck a hot springs geyser. He began a bottling company that sold the sparkling mineral water from the geyser and the business thrived. In 1970, Mr. Musante's company was purchased by Elwood Springer who turned the Calistoga Beverage Company into a national brand. Today, Calistoga remains a resort destination (City of Calistoga, 2014).

St. Helena

Prior to European settlement, St. Helena was the location of a Wappo village called Annakotanoma. European settlers began moving into the area in the early 19th Century and, in the 1840s, Dr. Edward Turner Bale received a land grant from the Mexican government for approximately 18,000 acres of the central Napa Valley. After Dr. Bale died in 1849, his family began selling portions of their large holdings to settlers moving into the area. The town of St. Helena was founded on land formerly owned by the Bale family. The railroad came through the area in 1868 and the city was incorporated in 1876, at which time it boasted a population of 1,800 people. The 1860s brought settlers who began planting vineyards, and the wine industry thrived, attracting more people to the area.

Vallejo

The Rancho Suscol was established by General Mariano Vallejo in 1835. An agreement with a local Suisun Indian chief allowed the area to remain primarily Native through the 1840's. In 1850, after California became a state, General Vallejo donated 156 acres of his land to form a new state capital, and the City of Vallejo became the seat of the California government in 1852. Rough living conditions prompted the state legislature to move the capital to Sacramento soon after. Although Vallejo briefly held the state seat once more following floods in Sacramento in 1862, the city lost the capital to Sacramento permanently and Vallejo became a virtual ghost town. In 1858, the town was revived after the United States Navy purchased Mare Island for its first west coast installation. Vallejo became an important Navy post and shipyard for almost 150 years, drawing people to the area and allowing the city to grow. Following World War II, the city had a population of nearly 100,000. The Navy Mare Island was closed in 1996 (Vallejo Convention and Visitors Bureau, 2007).

7.5. Paleontological Resources

Paleontological resources include mineralized (fossilized) or un-mineralized bones, teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains.

Napa County

According to the Napa County General Plan Update Draft EIR (Napa County, 2007), a search of the University of California Museum of Paleontology (UCMP) collections database identified eight locations in Napa County where paleontological resources have been identified. A total of fifty-two specimens, primarily plants (i.e., 38 specimens) were identified at eight paleontological sites in the County. However, not all specimens in the UCMP collections have been catalogued and digitized, and other specimens have been recorded in the vicinity of the Project area. Nearly all of these specimens have

been identified in the Sonoma Formation with a few specimens being identified in the San Pablo, Venado, and Tehama Formations.

Sonoma County

According to the Sonoma County General Plan 2020 Draft EIR (Sonoma County, 2006), paleontological remains within the county are fairly common and have been primarily recovered from the following geologic formations:

- Franciscan complex (Jurassic) – This formation largely covers the northern part of the county, with the exception of the Alexander Valley and northern Santa Rosa plain;
- Wilson Grove Formation (Miocene-Pliocene) – This is a common location for paleontological remains, and is largely located in the western part of the county, along with the Ohlson Ranch Formation (Miocene-Pliocene), and the Petaluma Formation. The boundaries of this area are Occidental, Sebastopol, Petaluma, and the Pacific Coast. These formations are also present around the base of the Sonoma Mountains; and
- Sonoma Volcanics (Miocene-Pliocene) – This is the formation of the Sonoma Mountains and the Sonoma/ Napa Mountains which form the western border of the county. This formation serves as the parent material for many of the soils in the Napa and Sonoma wine regions.

7.6. Regulatory Setting

7.6.1. Cultural Resources Obligations under CEQA

Any project that causes or has the potential to cause, a substantial adverse change in the significance of a cultural resource, including tribal cultural resources, either directly or indirectly, is a project that may have a significant effect on the environment. As a result, such a project would require avoidance or mitigation of impacts to those affected resources.

Cultural resources encompass historical resources (Cal. Code Regs., tit. 14, § 15064.5), including sites listed on the California Register of Historical Resources (CRHR) (Pub. Res. Code § 5024.1; Cal. Code Regs., tit. 14, § 4852) and the National Register of Historic Places (NRHP) (36 CFR 60.4); archaeological resources (Pub. Res. Code § 21083.2(g)); and tribal cultural resources (Pub. Res. Code § 21074(a)).). Cultural resources eligible for listing on the NRHP are automatically eligible for the CRHR, and resources listed on or eligible for inclusion in the CRHR must be considered in CEQA analyses. The lead agency is responsible for ensuring compliance with avoidance or mitigation measures for Historical Resources, in order to reduce impacts. CEQA Guidelines section 15097, Mitigation Monitoring or Reporting, requires that “the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the Project and the measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.”

To address effects on tribal cultural resources, specifically, the lead agency must also fulfill the requirements of Assembly Bill 52 (AB 52). AB 52 requires a lead agency to notify tribes traditionally and culturally affiliated with a project area of the details of the proposed project, provided the tribes have requested such notification (Pub. Res. Code § 21080.3.1(d)). If any of the notified tribes requests

consultation, then the lead agency must consult with the tribe to discuss avoidance and mitigation of significant impacts to tribal cultural resources (Pub. Res. Code § 21080.3.2).

Here, the notification and/or consultation requirements of AB 52 were not triggered because the Notice of Preparation was issued prior to July 1, 2015. Therefore, the agency has satisfied its obligations under the statute.

7.6.2. Napa County General Plan

The Community Character Element of the Napa County General Plan (Napa County, 2008) has several goals and policies geared towards preservation of cultural and paleontological resources within Napa County. The following is a list of goals and polices that may be applicable to the Proposed Project. A full description of all goals and polices pertaining to natural resources can be found in the Community Character Element of the Napa County General Plan.

Cultural and Paleontological Resources Goals and Policies

Goal CC-4: Identify and preserve Napa County's irreplaceable cultural and historic resources for present and future generations to appreciate and enjoy.

Goal CC-5: Encourage the reuse of historic buildings by providing incentives for their rehabilitation and reuse.

Policy CC-17: Significant cultural resources are sites that are listed in or eligible for listing in either the NRHP or the CRHR due to their potential to yield new information regarding prehistoric or historic people and events or due to their intrinsic or traditional cultural value.

Policy CC-18: Significant historical resources are building s, structures, districts, and cultural landscapes that are designated Napa County Landmarks or listed in or eligible for listing in either the NRHP or the CRHR. Owner consent is a prerequisite for designation as a County Landmark.

Policy CC-19: The County supports the identification and preservation of resources from the County's historic and prehistoric periods.

> Action Item CC-19.1: In partnership with interested historic preservation organizations, seek funding to undertake a comprehensive inventory of the County's significant cultural and historic resources using the highest standard of professional practices.
>
> Action Item CC-19.2: Consider amendments to the County zoning and building codes to improve the procedures and standards for property owner-initiated designation of County Landmarks, to provide for the preservation and appropriate rehabilitation of significant resources, and to incorporate incentives for historic preservation.

Policy CC-20: The County shall support and strengthen public awareness of cultural and historic preservation through education, public outreach, and partnership with public and private groups involved in historic preservation. Example programs include:

- Providing information to the public on historic preservation efforts and financial incentive programs.
- Creating a historic preservation page on the County's Web site with links to federal and state historic preservation programs and financial incentive programs.

- Distributing pamphlets that outline and discuss historic preservation programs available to property owners.

Policy CC-21: Rock walls constructed prior to 1920 are important reminders of the County's agricultural past. Those walls which follow property lines or designated scenic roadways shall be retained to the extent feasible and modified only to permit required repairs and allow for openings necessary to provide for access.

Policy CC-22: The County supports efforts to recognize and perpetuate historic vineyard uses and should consider ways to provide formal recognition of "heritage" landscapes, trees, and other landscape features with owner consent.

Policy CC-23: The County supports continued research into and documentation of the county's history and prehistory, and shall protect significant cultural resources from inadvertent damage during grading, excavation, and construction activities.

Action Item CC-23.1: In areas identified in the Baseline Data Report as having a significant potential for containing significant archaeological resources, require completion of an archival study and, if warranted by the archival study, a detailed on-site survey or other work as part of the environmental review process for discretionary projects.

Action Item CC-23.2: Impose the following conditions on all discretionary projects in areas which do not have a significant potential for containing archaeological or paleontological resources:

- "The Planning Department shall be notified immediately if any prehistoric, archaeologic [sic], or paleontologic [sic] artifact is uncovered during construction. All construction must stop and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology shall be retained to evaluate the finds and recommend appropriate action."
- "All construction must stop if any human remains are uncovered, and the County Coroner must be notified according to Section 7050.5 of California's Health and Safety Code. If the remains are determined to be Native American, the procedures outlined in CEQA Section 15064.5 (d) and (e) shall be followed."

Policy CC-24: Promote the County's historic and cultural resources as a means to enhance the County's identity as the nation's premier wine country and a top tourist destination, recognizing that "heritage tourism" allows tourists to have an authentic experience and makes good business sense.

Policy CC-25: Promote the use of recreational trails following historic alignments such as the Oat Hill Mine Road, and make every effort to include historical information at all trail heads and in trail maps and brochures. Also provide historical information about roads that follow historic trails where feasible, such as Silverado Trail, Old Sonoma Road, Glass Mountain Road, and others. Provide access for the elderly and disabled to interpretive information, trail segments, and trail heads as required by law.

Policy CC-26: Projects which follow the Secretary of the Interior's Standards for Preservation Projects shall be considered to have mitigated their impact on the historic resource.

Policy CC-26.5: When discretionary projects involve potential historic architectural resources, the County shall require an evaluation of the eligibility of the potential resources for inclusion in the NRHP and the CRHR by a qualified architectural historian. When historic architectural resources that are either listed in or determined eligible for inclusion in the NRHP or the CRHR are proposed for demolition or

modification, the County shall require an evaluation of the proposal by a qualified preservation architect to determine whether it complies with the Secretary of the Interior's Standards for Preservation Projects. In the event that the proposal is determined not to comply with the Secretary of the Interior's Standards, the preservation architect shall recommend modifications to the project design for consideration by the County and for consideration and possible implementation by the project proponent. These recommendations may include modification of the design, re-use of the structure, or avoidance of the structure.

Policy CC-27: Offer incentives for the appropriate rehabilitation and reuse of historic buildings and disseminate information regarding incentives available at the state and federal level. Such incentives shall include but are not limited to the following:

a) Apply the State Historical Building Code when building modifications are proposed.

b) Reduce County building permit fees when qualified preservation professionals are retained by applicants to verify conformance with the SHBC and the Secretary of the Interior's Standards.

c) Use of the federal historic preservation tax credit for qualified rehabilitation projects.

d) Income tax deductions for qualified donations of historic preservation easements.

Policy CC-28: As an additional incentive for historic preservation, owners of existing buildings within agricultural areas of the County that are either designated as Napa County Landmarks or listed in the CRHR or the NRHP may apply for permission to reuse these buildings for their historic use or a compatible new use regardless of the land uses that would otherwise be permitted in the area so long as the use is compatible with agriculture, provided that the historic building is rehabilitated and maintained in conformance with the U.S. Secretary of the Interior's Standards for Preservation Projects.

This policy recognizes that, due to the small number of existing historic buildings in the County and the requirement that their historic reuse be compatible with agriculture, such limited development will not be detrimental to the Agriculture, Watershed or Open Space policies of the General Plan. Therefore such development is consistent with all of the goals and policies of the General Plan.

> Action Item CC-28.1: Amend the Zoning Ordinance to provide a discretionary process such as a use permit by which property owners may seek approval consistent with Policy CC-28, for an additional incentive for historic preservation. The process shall preclude reuse of buildings which have lost their historic integrity and prohibit new uses that are incompatible with the historic building or that require inappropriate new construction.

Policy CC-29: Significant historic resources that are damaged by flood, fire, neglect, earthquake, or other natural disaster should be carefully evaluated by a structural engineer with preservation experience before they are determined to be beyond repair and destroyed.

Policy CC-30: Because the County encourages preservation of historic buildings and structures in place and those buildings and structure must retain "integrity" to be considered historically significant, the County shall discourage scavenging of materials from pre-1920 walls and other structures unless they are beyond repair.

7.6.3. Sonoma County General Plan

The Open Space and Conservation Element of the *Sonoma County General Plan 2020* (Sonoma County 2010) has several goals, objectives and policies geared towards to conservation and preservation of cultural resources and protection of paleontological resources within Sonoma County.

The following is a list of goals, objectives and policies that may be applicable to the Proposed Project. A full description of all goals and objectives pertaining to natural resources can be found in *Open Space and Conservation Element Sonoma County General Plan*.

Cultural and Paleontological Resources Goals and Policies

GOAL OSRC-19: Protect and preserve significant archaeological and historical sites that represent the ethnic, cultural, and economic groups that have lived and worked in Sonoma County, including Native American populations. Preserve unique or historically significant heritage or landmark trees.

Objective OSRC-19.1: Encourage the preservation and conservation of historic structures by promoting their rehabilitation or adaptation to new uses.

Objective OSRC-19.2: Encourage preservation of historic building or cemeteries by maintaining a Landmarks Commission to review projects that may affect historic structures or other cultural resources.

Objective OSRC-19.3: Encourage protection and preservation of archaeological and cultural resources by reviewing all development projects in archaeologically sensitive areas.

Objective OSRC-19.4: Identify and preserve heritage and landmark trees.

Objective OSRC-19.5: Encourage the identification, preservation, and protection of Native American cultural resources, sacred sites, places, features, and objects, including historic or prehistoric ruins, burial grounds, cemeteries, and ceremonial sites. Ensure appropriate treatment of Native American and other human remains discovered during a project.

Objective OSRC-19.6: Develop and employ procedures to protect the confidentiality and prevent inappropriate public exposure of sensitive archaeological resources and Native American cultural resources, sacred sites, places, features, or objects.

Policy OSRC-19a: Designate the County Landmarks Commission to review projects within designated historic districts.*

Policy OSRC-19b: Refer proposals for County Landmark status and rezoning to the Historic Combining District to the County Landmarks Commission.*

Policy OSRC-19c: The County Landmarks Commission shall review Historic Building Surveys and make recommendations for designation of structures or cemeteries as County landmarks.*

Policy OSRC-19d: Include a list of historic structures proposed for designation as County landmarks in Specific or Area Plans or Local Area Development Guidelines and refer the list to the Landmarks Commission for their recommendations.*

Policy OSRC-19e: Refer applications that involve the removal, destruction or alteration of a structure or cemetery identified in a historic building survey to the Landmarks Commission for mitigation. Measures may include reuse, relocation, or photo documentation.*

Policy OSRC-19f: Use the Heritage or Landmark Tree Ordinance and the design review process to protect trees.

Policy OSRC-19g: Pursue grant funding for the preparation and updating of historic resource inventories.*

Policy OSRC-19h: Designate the County Landmarks Commission to administer a preservation program for stabilization, rehabilitation, and restoration of historic structures.*

Policy OSRC-19i: Develop a historic resources protection program that provides for an ongoing process of updating the inventory of historic resources. Such a program should include:

(1) Periodic historic building surveys,

(2) Formalized recognition of the inventory of historic resources as recommended by the State Office of Historic Preservation, including rezoning to the Historic Combining District (HD), and

(3) Procedures for the protection of recognized historic resources for both ministerial and discretionary permits *

Policy OSRC-19j: Develop an archaeological and paleontological resource protection program that provides:

(1) Guidelines for land uses and development on parcels identified as containing such resources,

(2) Standard project review procedures for protection of such resources when discovered during excavation and site disturbance, and

(3) Educational materials for the building industry and the general public on the identification and protection of such resources.*

Policy OSRC-19k: Refer applications for discretionary permits to the Northwest Information Center to determine if the project site might contain archaeological or historical resources. If a site is likely to have these resources, require a field survey and preparation of an archaeological report containing the results of the survey and include mitigation measures if needed.*

Policy OSRC-19l: If a project site is determined to contain Native American cultural resources, such as sacred sites, places, features, or objects, including historic or prehistoric ruins, burial grounds, cemeteries, and ceremonial sites, notify and offer to consult with the tribe or tribes that have been identified as having cultural ties and affiliation with that geographic area.*

Policy OSRC-19m: Develop procedures for consulting with appropriate Native American tribes during the General Plan adoption and amendment process.*

Policy OSRC-19n: Develop procedures for complying with the provisions of State Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98, if applicable, in the event of the discovery of a burial or suspected human bone. Develop procedures for consultation with the Most Likely Descendant as identified by the California Native American Heritage Commission, in the event that the remains are determined to be Native American.*

Footnote: *Mitigating Policy

7.7. Environmental Analysis

7.7.1. Impact Analysis Approach and Methods

The impact analysis considers the types of commonly used BMPs to control erosion from vineyard properties and the approach conservatively estimates the use of those BMPs and related impacts. BMPs include:

1. BMPs implemented on existing unpaved roads with the exception of BMPs at road crossings;
2. BMPs implemented on existing unpaved roads at road crossings;
3. BMPs implemented within existing farmed areas;

4. BMPs implemented to control erosion at landslides, gullies, and/or actively eroding headwater channels where land-use related increases in storm runoff has contributed to the erosional response, and there is the potential for sediment delivery to a channel reach that provides habitat for anadromous salmonids; and
5. BMPs implemented outside of the existing unpaved roads and/or existing farmed areas.

The following evaluation of cultural resource impacts was prepared considering applicable regulations and guidelines, and typical construction activities attributable to compliance with the General Permit. The assessment of potential impacts included review of documents, maps, and data; observation of existing vineyard operations; and consultation with persons currently involved with permitting or environmental documentation for vineyards. Additional consideration was given to direct impact mechanisms for disturbing, materially altering, or demolishing cultural resources, including buried human remains, as a result of upgrading existing roads, road crossings and erosion controls, or from construction of new BMPs and related ground-disturbing activities.

Actions to comply with the General Permit could involve both minor and larger-scale grading and construction activities. Although a majority of these construction activities are expected to fall within the existing, developed vineyard footprint, due to either technical feasibility and/or space constraints, some could be located in adjacent, undeveloped portions of the vineyard property.

Construction of most BMPs shown on Table 2-3, with the exception of BMP-21 (plant tissue tests), BMP-22 (pesticide applications), BMP-23 (integrated pest management), BMP-24 (wellhead protection), BMP-25 (pesticide storage, and BMP- 26 (fertigation), would involve earth moving/disturbance. The scale of the earth moving activity will depend on the BMP being implemented. For example, all BMPs listed on Table 2-3 will involve shallow soil excavation, somewhere on the order of 1 foot depth or less, with the exception of those BMPs linked to:

- road improvements
- road relocation
- culvert replacements and stream crossing work
- detention basin and/or managed wetland construction
- drainage pipe installation and/or disconnection
- level spreader installation.

As Section 1.1 describes, when a vineyard is first developed, it is standard practice to prepare the site for the vineyard by removing all natural vegetation cover and deep ripping the soil and shallow bedrock in places, to a depth of 3 feet-or-more to create a uniform growing horizon. The end result is a highly disturbed environment that is not conducive to the preservation of cultural resources.

Because of the highly disturbed baseline condition of the vineyard proper, implementation actions taken to comply with the General Permit that are both shallow (less than 1 foot) and/or deep (greater than 1 foot), that are located on existing vineyards will result in no impact to cultural resources. As previously discussed, the General Permit does not authorize the approval or development of new vineyards.

By contrast, the EIR conservatively concludes that some actions undertaken to comply with the General Permit, because of their possible siting and deeper excavation on previously undisturbed portions of vineyard properties, exhibit the potential for significant and unavoidable impacts to cultural resources.

This analysis of potential significant impacts to cultural resources takes into consideration the questions and mandatory findings of significance as outlined in section 15065 of the CEQA Guidelines.

7.7.2. Impact Analysis through Cultural Context and Sensitivity

Based on the historic context of the Project area, areas considered highest in sensitivity for prehistoric (Native American) archaeological resources include:

- Areas adjacent to ancient water sources, including the former riparian belts, terraces, and watercourses of rivers and creeks, which may now lie beneath developed or agricultural land
- Areas in or along the periphery of naturally occurring meadows
- Hilltops and ridge tops that provide good visibility of the surrounding area, or that provide separation from flood waters
- Bedrock outcrops.

Areas considered highest in sensitivity for historic (Euro-American) archaeological resources include:

- Current or former silver-bearing alluvial deposits (primarily sands and gravels) along and within current waterways
- Locations of recorded homesteads and land patents
- Locations of recorded mine claims
- Areas adjacent to former house sites or existing historic buildings, such as privies, refuse deposits, and cellars
- Areas along the Napa Valley Railroad and transportation corridors, including bridges or road crossings of the same
- Historic vineyards and wineries.

Areas considered highest in sensitivity for historic, built-environment resources (buildings and structures) are the following areas:

- Historic-era town sites, including, but not limited to, Napa, Sonoma, Glen Ellen, and Calistoga
- Known historic districts
- Within historic-age wineries and vineyards
- Depots along historic railroads.

7.7.3. Thresholds of Significance

An impact related to cultural resources is considered significant if it would result in any of the following issues (Appendix G of the CEQA Guidelines):

- Cause a substantial adverse change in the significance of historical resource as defined in CEQA Guidelines section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5;
- Directly or indirectly destroy a unique paleontological resource; or site of unique geologic feature;
- Disturb any human remains, including those interred outside of formal cemeteries.

CEQA Guidelines section 15064.5 provides that, in general, a resource not listed on state or local registers of historical resources shall be considered by the lead agency to be historically significant if the resource meets criteria for listing on the California Register of Historical Resources. CEQA Guidelines section 15064.5 also provides standards for determining what constitutes a “substantial adverse change” that must be considered a significant impact on archaeological or historic resources.

For example, a “significant adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired” (CEQA Guidelines, section 15064.5, subd. (b)(1).).

7.7.4. Impacts and Mitigation Measures

This section identifies potential impacts to cultural resources that could result during BMP implementation. Ground-disturbing activities, such as excavation, grading, filling, compaction, or re-vegetation, may potentially impact archaeological resources, which are typically on or beneath the ground surface.

Although there always remains the potential for ground-disturbing activities to expose previously unrecorded cultural resources, impacts to cultural resources would be relatively rare because most BMPs involve the construction of small features that would be sited within previously disturbed areas, such as existing unpaved roads and vineyard areas, and within previously disturbed depths. On relatively few occasions, BMPs may require ground disturbing activities outside of previously disturbed areas, as would be the case with roadway realignments, or at greater depths within previously undisturbed areas, such as the installation of detention basins. Some BMPs, however, may require excavation or grading deeper into undisturbed soils within these areas, raising the possibility of impacting cultural resources buried at greater depths. Furthermore, BMPs could be installed outside of existing vineyards and roadways, and potentially alter or destroy historical, archaeological, or paleontological resources or human remains.

Impact 7.1: Compliance with the General Permit does not have the potential to cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5.

The impact being evaluated is impacts on historic structures that may be considered “historic resources” as defined by CEQA Guidelines Section 15064.5(a).

Implementation of the General Permit will likely involve grading and construction at existing vineyard properties or on agriculturally zoned parcels proposed for future vineyard development. It would not include removal or demolition of structures, bridges, walls, or other potentially historic structures and features. Construction would occur on agricultural land or on open space and would generally be limited in scale, and would include planting of cover crops, placement of mulch, installation of vegetated filter strips, road repair and resurfacing, drainage facilities, repair of culverts, eroding gullies, and stream banks.

Construction may occur in stream channels where nineteenth century and/or early twentieth century rock walls or Civilian Conservation Corps (CCC) erosion control structures (e.g., stream bank or bed stabilization structures, check-dams, detention basins, etc.) are present, however, erosion control practices required under the General Permit are not likely to result in substantial adverse alteration of these features. Grading and construction usually would occur in vineyards and on roads that have been previously disturbed by recent agricultural human activity, not at, or in areas containing historical resources as defined by section 15064.5 of the CEQA Guidelines. The General Permit does not authorize the approval or development of new vineyards which are approved by local governing authorities that impose mitigation measures as part of their environmental review process. The

respective county processes environmental review of vineyard development and replants are summarized in Section 1.2.

Because the Project neither proposes demolition of existing structures nor introduction of elements that could affect the historic setting of the built environment, **impacts to historical resources would be less than significant**.

Impact 7.2: Compliance with the General Permit may have potential to cause a substantial adverse change in the significance of archaeological resources pursuant to section 15064.5.

The impact being evaluated is impacts on (pre-historic) archaeological resources that may be considered either "historic resources" as defined by CEQA Guidelines Section 15064.5 (s) or "unique archeological resources" as defined by Guidelines Section 15064(c) (3).

Actions to comply with the General Permit could involve both minor and larger-scale grading and construction. Large scale construction would generally be limited to road relocation, detention basin/managed wetland construction, and culvert replacement. Management practices such as modification of road drainage and measures to control erosion from the planted area and at points of discharge would generally be small in scale, and would be limited to shallow excavation. As noted above, however, in some cases, deeper excavation may be necessary to construct detention basins, relocate a road segment, and/or replace a road crossing and culvert. In some locations, such as near streams and at the base of hills (see Section 7.6.3, above), archaeological resources could be encountered. As such, **actions taken to comply with the General Permit present potentially significant impacts to archeological resources**.

Mitigation Measure CR-7.2

Landowners subject to the General Permit shall implement the following recognized and accepted measures that are routinely required by regulatory agencies that include:

- Perform a cultural resources survey by a qualified archaeologist or cultural specialist that conforms to the U.S. Secretary of the Interior's Professional Qualifications Standards, as published in 36 Code of Federal Regulations;

- Contact the state Historic Preservation Officer and federal lead agencies as appropriate for coordination of Nation-to-Nation consultations with the Native American Tribes;

- Consult a qualified paleontological resources specialist to determine whether paleontological resources would likely be disturbed in a project area on the basis of the sedimentary context of the area and a records search for past paleontological finds in the area. The assessment may suggest areas of high or known potential for containing resources. If the assessment is inconclusive, a surface survey is recommended to determine the fossil potential and extent of the pertinent sedimentary units within the project site. If the site contains areas of high potential for significant paleontological resources and avoidance is not possible, prepare a paleontological resources mitigation plan;

- Consult established archaeological and historical records and conduct a field survey of the project prior to construction. Survey records shall be filed with the appropriate archaeological or historical data centers;

- Consult with local Native American representatives as appropriate to obtain local knowledge of the project vicinity;

- Prepare site development and grading plans that avoid disturbance of known cultural sites and/or documented sensitive areas. Project plans shall include appropriate measures to protect sensitive resources;

- Retain a qualified archaeologist or Native American representative to monitor site development activities, particularly grading and trenching. If artifacts are observed during construction, require that construction be halted until a qualified archaeologist has been consulted;

- Alert onsite workers to the possibility of encountering human remains during construction activities, and prepare appropriate procedures. It is usually required that all construction activities near the location of identified human skeletal remains are halted until proper consultation and mitigation is arranged.

- Preservation in place is the preferred manner of mitigating impacts to archaeological sites. Preservation place maintains the relationship between the artifacts and the archaeological context. Preservation in place may be accomplished by, but not limited to:

    - Planning construction to avoid archaeological sites
    - Incorporation of sites with open space
    - Covering the archaeological site with a layer of chemically stable soil before building facilities on the site.
    - Deeding the site into a permanent conservation easement.

- When data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provision for adequately recovering eh scientifically consequential information from and about the historic resource shall be prepared and adopted before any excavation is undertaken. Such studies shall be deposited with the California Historical Resources Regional Information Center. Archaeological sites known to contain human remains shall be treated in accordance with the provisions of Section 7050.5, Health and Safety Code. If an artifact is removed during project excavation or testing, curation may be an appropriate mitigation.

- Data recovery shall not be required for an historical resource if the Lead Agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource, provided that the determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center.

Impact significance after mitigation

Impacts to cultural resources and archaeological resources can be reduced to a less than significant level with the implementation of the mitigation measures described above. However, the Water Board would not have oversight of the implementation of proposed mitigation measures described above.

The ability to require such measures is within the purview of jurisdictions with local land use approval and/or permitting authority. In all cases where compliance actions at an individual Vineyard Property meet the CEQA definition of a "Project," the local land-use authority would issue a CEQA document. In some of those cases, local land use agencies have determined that a categorical exemption applies to the action (e.g. construction of erosion control BMPs within the footprint of existing unpaved roads) or has a streamlined CEQA process in place (e.g. VESCO). Therefore, there is inherent uncertainty in the degree of mitigation the counties will ultimately implement to reduce potential significant impacts. **Consequently, the EIR takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that potentially significant environmental impacts to cultural resources resulting from disturbances such as grading and trenching may be significant and unavoidable**.

Impact 7.3: Compliance with the General Permit may have the potential to directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature.

In almost all cases, excavation related to BMP construction and/or maintenance that would occur to comply with the General Permit would be confined to soils and/or alluvial deposits, neither of which are known to contain unique geologic features and/or unique paleontological resources.

At a small number of hillslope vineyard properties where detention basins may need to be constructed, it is plausible though highly improbable that geological materials (bedrock units) would be excavated and/or disturbed, and in those few cases where geologic materials would be disturbed, the probability of overlapping with a unique geologic feature or paleontological resource is very small. Nevertheless, considering the size of the project area and large number of properties that would be enrolled in the General Permit, it is not possible to definitively conclude at this time that there would be no impact to geologic or paleontological resources. Therefore, the EIR finds conservatively that **impacts to a unique paleontological resource or unique geologic feature are potentially significant.**

Impact significance after mitigation

Impacts to a unique paleontological resource or site, or unique geologic feature can be reduced to a less than significant level with the implementation of the mitigation measure CR-7.2, described above. However, the Water Board would not have oversight of the implementation of proposed mitigation measures described above. The ability to require such measures is within the purview of jurisdictions with local land use approval and/or permitting authority. In all cases where compliance actions at an individual Vineyard Property meet the CEQA definition of a "Project," the local land-use authority would issue a CEQA document. In some of those cases, local land use agencies have determined that a categorical exemption applies to the action (e.g. construction of erosion control BMPs within the footprint of existing unpaved roads) or has a streamlined CEQA process in place (e.g. VESCO). Therefore, there is inherent uncertainty in the degree of mitigation the counties will ultimately implement to reduce potential significant impacts. **Consequently, the EIR takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that potentially significant environmental impacts to cultural resources resulting from disturbances such as grading and trenching may be significant and unavoidable**.

Impact 7.4: Compliance with the General Permit may have the potential to disturb human remains, including those interred outside formal cemeteries.

Actions to comply with the General Permit could involve minor and larger-scale grading and construction. Large scale construction would generally be limited to road relocation, detention basin/managed wetland construction, and culvert replacement. Management practices such as modification of road drainage and measures to control erosion from the planted area and at points of discharge would generally be small in scale, and would be limited to shallow excavation. In some cases, deeper excavation may be necessary to construct detention basins, relocate a road segment, and/or replace a road crossing and culvert. In some locations, such as near streams and at the base of hills (see Section 7.6.3, above), there is the potential for human remains to be encountered. As such, **actions taken to comply with the General Permit present the potential to disturb human remains and this impact is potentially significant.**

Impact significance after mitigation

Impacts to human remains can be reduced to a less than significant level with the implementation of the mitigation measure CR-7.2, described above. However, the Water Board would not have oversight of the implementation of proposed mitigation measures described above. The ability to require such measures is within the purview of jurisdictions with local land use approval and/or permitting authority. In all cases where compliance actions at an individual Vineyard Property meet the CEQA definition of a "Project," the local land-use authority would issue a CEQA document. In some of those cases, local land use agencies have determined that a categorical exemption applies to the action (e.g. construction of erosion control BMPs within the footprint of existing unpaved roads) or has a streamlined CEQA process in place (e.g. VESCO). Therefore, there is inherent uncertainty in the degree of mitigation the counties will ultimately implement to reduce potential significant impacts. **Consequently, the EIR takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that potentially significant environmental impacts to cultural resources resulting from disturbances such as grading and trenching may be significant and unavoidable**.

References

Beardsley, Richard K. (1948). *Culture Sequences in Central California Archaeology*. In American Antiquity, Volume 14, pages 1-28.

California Department of State Hospitals

Department of State Hospitals- Napa. (no date). Electronic document, http://www.dsh.ca.gov/napa/ accessed 5 December, 2014.

California Missions Online. (n.d.). Mission History. California Missions.net. Electronic document, http://www.california missionsonline.com/

Castillo, Edward D. (1978). The Impact of Euro-American Exploration and Settlement. In Handbook of North American Indians, Volume 8, California, edited by R.F. Heizer, pp. 99-127. William C. Sturtevant, general editor. Smithsonian Institution, Washington D.C.

City of Calistoga. (2014). History. In the City of Calistoga website. Electronic document. http://www.ci.calistoga.ca.us/Index.aspx?page=35, accessed 8 December 2014

City of Napa. (n.d.). *About Napa Today*. Electronic document, http://www.cityofnapa.org/index.php?Itemid=300&id=221&option=com_content&task=view, accessed 5 December, 2014.

City of Sonoma. (n.d.). Visiting Sonoma, History, electronic document, http://www.sonomacity.org/default.aspx?PageId=3, accessed 5 December 2014.

City of St. Helena. (n.d.). Our History. In the St. Helena California website, Electronic document, http://www.ci.st-helena.ca.us/content/our-history, accessed 5 December 2014

Cook, S. F. (1955). The Epidemic of 1830-1833 in California and Oregon, University of California Publications in American Archaeology and Ethnology. Volume 43, No. 3, pp. 303-326. University of California Press Berkeley and Los Angeles.

Elmendorf, William. (1963). Yukonian-Siouan Lexical Similarities. *International Journal of American Linguistics*.

Elsasser, Albert A. (1978). Development of Regional Prehistoric Cultures. In Handbook of North American Indians, Volume 8, California, edited by R.F. Heizer, pp. 37-57. William C. Sturtevant, general editor. Smithsonian Institution, Washington D.C.

Erlandson, J. M. (1994). Early Hunter-Gatherers of the California Coast. Plenum Press, New York.

Foster, John W. (1995). *A Cultural Resource Survey and Assessment of the Off-Channel Mining Project Site, Capay, California*. Foothill Archeological Services, Fair Oaks, California. Report on file at the Northwest Information Center, CSU Sonoma.

Fredrickson, David A. (1974). *Cultural Diversity in Early Central California: A View from the North Coast Ranges.* In The Journal of California Anthropology, Volume 1, pp. 41-53.

Gregory, Thomas Jefferson. (1912). History of the Solano and Napa Counties, California: With Biographical Sketches of the Leading Men and Women. Historic Record Company Publisher.

Heizer, Robert F. (1953). *Archaeology of the Napa Region*. Anthropological Records Vol. 12. University of California Press, Berkeley and Los Angeles.

Jelinek, Lawrence. (1982). *Harvest Empire, A History of California Agriculture.* Heinle and Heinle Publishers.

Johnson, Patti. (1978). Patwin, in R. F. Heizer, ed., *Handbook of North American Indians, Volume 8: California*, pp. 350-360. Smithsonian Institution, Washington.

Jones and Stokes. (2005). Chapter 14, Napa County Baseline Data Report, Cultural Resources. http://www.napawatersheds.org/img/managed/Document/2318/Ch14_CulturalResources.pdf, accessed 13 November, 2014.

Kelly, Isabel Truesdell. (1978). "Coast Miwok." In *Handbook of North American Indians, Vol 8., California*. Edited by R.F. Heizer. Smithsonian Institution, Washington, D.C.

King, Norton. (1967). "The History of Napa." In *Napa County: An Historical Overview*. http://www.cityofnapa.org/index.php?Itemid=300&id=221&option=com_content&task=view, accessed 13 November, 2014.

Kroeber, Alfred L.

(1925) Handbook of the Indians of California. Bureau of American Ethnology Bulletin 78. Washington.

(1932) The Patwin and their Neighbors. University of California Publications in American Archaeology and Ethnology.

(1976) Handbook of the Indians of California. Dover Publications, Inc., New York.

Kyle, Douglas. (2002). Historic Spots in California. Stanford University Press. Stanford, California.

Loeb, Edwin M. (1933). The Western Kuksu Cult. *University of California Publications in American Archaeology and Ethnology* 33(1): 1-137.

Marshall, James W. (1971). The Discovery. In California Heritage: An Anthology of History and Literature, edited by John and Laree Caughey, pp. 191-192. F. E. Peacock Publishers, Itasca, Illinois. Revised Edition.

McCawley, William. (1996). The First Angelinos: the Gabrielino Indians of Los Angeles. Malki Museum Press, Ballena Press, Banning, California.

Milliken, Randall. (1995). *A Time of Little Choice: The Disintegrations of the Tribal Culture in the San Francisco Bay Area, 1769-1810.* Ballena Press Anthropological Papers No. 43, Ballena Press, Novato.

Moratto, M. J.(1984) *California Archaeology*. Academic Press, San Francisco.

Napa County (2007) Napa County General Plan, Draft Environmental Impact Report (SCH No. Available at: http://www.countyofnapa.org/. February 16.

Napa County General Plan (2008). Available at: http://www.countyofnapa.org/GeneralPlan/. June 3.

Powers, Stephen. (1976). *Tribes of California*. University of California Press, Berkeley. Reprint of 1877 edition.

Robinson, W. W. (1948). Land in California: The Story of Mission Lands, Ranchos, Squatters, Mining Claims, Railroad Grants, Land Scrip, Homesteads. University of California Press, Berkeley.

Sawyer, Jesse. (1978)."Wappo." In *Handbook of North American Indians, Vol. 8. California*, edited by R.F. Heizer, pp.256-263. Smithsonian Institution, Washington, D.C.

Sonoma County.

(2010). Sonoma County General Plan 2020 Open Space and Conservation Element. Available at: http://www.sonoma-county.org/prmd/divpages/compplandiv.htm. August 24.

(2006). Sonoma County General Plan 2020 Draft Environmental Impact Report (SCH No. 2003012020). Available at: http://www.sonoma-county.org/prmd/divpages/compplandiv.htm. January.

Sonoma County Historical Society

(2014). Agriculture/timber in Sonoma County, No. 3. The *Historian*, Sonoma County Historical Society. http://www.sonomacountyhistory.org/historian/cumulative-index/, accessed 14 November, 2014.

(2014a). Earthquake 1906 special issue, No. 1. The *Historian*, Sonoma County Historical Society. http://www.sonomacountyhistory.org/historian/cumulative-index/, accessed 14 November, 2014.

Sonoma County Master Gardeners. (2014). Agriculture in Sonoma County: A Story of Change. University of California Cooperative Extension, Sonoma County Master Gardeners. http://ucanr.edu/sites/scmg/files/36511.pdf, accessed 14 November, 2014.

Sonoma.net. (2014). Parks and Recreation in Sonoma County website. Electronic Document, http://www.parks.sonoma.net/, accessed 14 November 2014.

Sonoma Valley Visitor's Bureau. (2012). Recent History. In the Sonoma Valley Visitors Bureau website. Electronic document. http://www.sonomavalley.com/sonoma-recent-history.html, accessed 8 December 2014.

State Parks. (2014). Bale Grist Mill, State Historic Park. California Department of Parks and Recreation. http://www.parks.ca.gov/?page_id=482, accessed 13 November 2014.

Thompson, T.H. and A.A. West. (1880). History of Napa and Solano Counties. Reproduced by Howell-North, 1960, Berkeley.

U.S. Census Bureau. (2010). 2010 Census CPH-T-6. American Indian and Alaskan Native Tribes in the United States and Puerto Rico, *2010 Census.*

Vallejo Convention and Visitors Bureau. (2007). About Vallejo. In the Visit Vallejo California website. Electronic document, http://www.visitvallejo.com/about-vallejo, accessed 8 December 2014.

Wallace, William J. (1978). "Post-Pleistocene Archeology, 9000 to 2000 BC." In *Handbook of North American Indians, Vol. 8: California*, edited by R.F. Heizer, pp. 25-36. Smithsonian Institution, Washington, D.C.

Yerger, Rebecca. (2013). Mercury Mining in Napa County. In the Napa Valley Register website. Electronic document, http://napavalleyregister.com/lifestyles/real-napa/columnists/rebecca-yerger/mercury-mining-in-napa-county/article_95ecd9de-a3ce-11e2-8bbb-0019bb2963f4.html, accessed 8 December 2014.

8. HYDROLOGY AND WATER QUALITY

This section presents: a) baseline physical conditions with regard to hydrology, groundwater, and water quality in the Napa River and Sonoma Creek watersheds including the effects of natural processes and land-use activities on the baseline conditions; b) relevant laws and policies that provide for water quality, groundwater, and flood protection; and c) potential impacts to hydrology and water quality that may result from project implementation and mitigation measures to lessen those impacts.

8.1. Regional Setting

The Napa River and Sonoma Creek watersheds are located in the Central California Coast Range, which is characterized by northwest trending ridges and valleys including the Sonoma, Mayacama, and Vaca mountains, and the Sonoma and Napa valleys, which are structurally aligned by displacement along the San Andreas Fault system (Harden, 2004, pp. 280-283). The Mayacama and Vaca mountains are being actively uplifted as a result of slight component of compression along the San Andreas Fault System along the Mayacama and Green Valley faults, which are major branches of the San Andreas Fault system (Swinchatt and Howell, 2004). The modern day Napa and Sonoma valleys are geologically recent features, likely deposited and formed within the past 6,000 years, as the rate of sea-level rise slowed following the end of the most recent glacial epoch, and sea-level approached its current level (Swinchatt and Howell, 2004).

Natural rates of sediment delivery to channels within the project area vary by almost two orders of magnitude from about 50-to-3000 metric tons/km^2/year, as a function of bedrock geology type and geomorphic setting (Water Board, 2009, pp. 42-47). Lowest rates are associated with hard volcanic flow rock terrain (Sonoma Volcanic Formation, Lava Flow Deposits). Highest rates of sediment delivery to channels are associated with Franciscan Mélange, which is renowned for its high-to-extreme rates of erosion (Brown and Ritter, 1971; Kelsey, 1980; and Lehre, 1982). Both the Napa River and Sonoma Creek watersheds are being actively uplifted. In such active landscapes, hills underlain by erosion-resistant hard bedrock maintain steep slopes, and those underlain by softer bedrock become gentle, eroding at much faster rates. Sonoma has much more of the hard lava flow bedrock type. Napa has much more of the softer sedimentary rock types. Within a given bedrock or alluvial deposit type, land-use activities exert a significant influence on total sediment supply to channels, and in all cases, regardless of terrain type, half-or-more of total sediment supply to channels is associated with land-use activities[50] – primarily intensive historical grazing, viticulture, and/or roads (Water Board, 2009, pp. 42-47; Water Board, 2008, Table 5, p. 43). The Napa River and Sonoma Creek, and alluvial reaches of their tributaries, are deeply incised and erosion of their beds and banks also is a significant sediment source that is the result of a wide array of direct and indirect land-use related disturbances (e.g., levee construction; ditching to connect natural disconnected tributaries to the mainstem channels; removal of

[50] In the stream channels draining hard volcanic bedrock, where natural supply is very low, a doubling of supply causes high quality winter refuge habitat for salmonids to be significantly degraded (i.e., with the increase in sediment supply, sand and fine gravel fills in the spaces between cobble-boulder bedforms making them no longer suitable as refuge habitats for juvenile steelhead and other aquatic wildlife species). This is one example of why we have not focused our permit program “on high sediment supply problem sites.” We need to restore the refuge habitats, as well as improve the overall condition of the Napa River and Sonoma Creek in order to support recovery of large resilient steelhead populations in the Napa River and Sonoma Creek watersheds.

large woody debris jams; runoff increases related to urban and/or agricultural development; dredging for flood control; construction of large tributary reservoir in the Napa River watershed., etc.).

The project area has a Mediterranean climate defined by cool rainy season from October through April when ≥ 90 percent of annual precipitation occurs, and a warm dry season during the summer and early fall (NOAA Online Weather Data, for Napa California, at http://www.nws.noaa.gov/climate/xmacis.php?wfo=mtr). Average annual precipitation, almost all of which falls as rain, is between 20 and 50 inches within both watersheds. Variability in average annual precipitation is primarily a function of elevation and orographic effects (Rantz, 1971). Higher values of average annual precipitation occur locally in the higher elevations of the Mayacama and/or Sonoma Mountains including Mt. St. Helena, which defines the headwaters of the Napa River, and is the highest peak in the project area. In an average rainfall year, about 35 percent of precipitation is discharged as surface runoff. In a wet year or location, annual precipitation can exceed 50 inches, ≥ 60 percent of which will be discharged as runoff.

Napa River Watershed

From its headwaters on Mt. St. Helena (elevation 4343 feet) to its mouth at San Pablo Bay approximately at sea level, the Napa River drains a 426 mi^2 watershed. The Mayacama Mountains define the western boundary of the watershed, where elevations vary between about 1000 and 2700 feet. Mt. St. Helena defines the northern boundary, and the Vaca Mountains, which generally are about 2000 feet in elevation, define the eastern boundary. The Napa River (approximately 55 miles long) flows through the Napa Valley, a structural valley where sediments have been deposited on a down-dropped fault block. The Napa Valley is about 4 miles wide over most of its length, before it begins to narrow rapidly and become about one mile wide, a short distance north of City of St. Helena. The Napa Valley retains its narrower form upstream to its terminus, immediately to the north of the Town of Calistoga.

Tributary channels drain small steep watersheds (drainage area ≤ 20 mi^2) that experience an abrupt reduction in slope and confinement where their channels exit the mountain front and traverse the floor of the Napa Valley. Prior to Euro-American settlement, many tributary channels were naturally disconnected and ended in alluvial fans without reaching/connecting to the Napa River. In order to accommodate agricultural and residential development, these naturally disconnected channels were ditched and connected to the Napa River, which eliminated the natural flood storage basins causing peak flows and sediment yields to the Napa River to greatly increase (Grossinger, 2012, pp. 52-53).

Almost all of Conn Creek, the largest tributary to the Napa River, drains into Lake Hennessey Reservoir (constructed in 1946), which provides most of the municipal water supply for the City of Napa. Municipal water supply reservoirs also have been built on Kimball Canyon Creek, Rector Creek, Bell Canyon Creek, and Milliken Creek[51]. About 20 percent of the Napa River watershed drains into the above municipal reservoirs[52]. In addition to the five large municipal reservoirs, there are approximately 1100 small private agricultural water supply reservoirs in the watershed, more than 400 of which have been constructed on channels (Dietrich et al., 2004). Considering the municipal and agricultural reservoirs

[51] With completion of a fish passage restoration project on Milliken Creek within the Silverado Country Club, expected by 2016, a significant proportion of Milliken Creek once again will be accessible to steelhead.

[52] In October 1989 a vineyard recently constructed on a hillslope slid into Bell Canyon Reservoir delivering and estimated 2000 tons of sediment and causing severe turbidity to effect the primary drinking water supply for the City of St. Helena (Poirier Locke, 2002, pp. 31-32, and 36-38). This event was a trigger for adoption of the Napa County Conservation Regulations in 1991.

together, approximately 30 percent of the Napa River watershed area drains into reservoirs[53], which exert a profound influence on the movement of fish and the discharge and routing of sediment, nutrients, large woody debris, and streamflow (Dietrich et al., 2004).

Sonoma Creek Watershed

Sonoma Creek drains an approximately 166 square mile watershed that ranges in elevation from sea level to the summit of Bald Mountain (2,739 ft.). It lies in a valley bounded by Sonoma Mountain to the west and the Mayacamas Mountains to the east. The mainstem of Sonoma Creek flows in a southeasterly direction from headwaters on Sugarloaf Ridge through Sonoma Valley before discharging to San Pablo Bay. Numerous tributaries enter the main stem from the mountains that rise on both sides of the valley (SEC et al., 2004).

Major land cover types in the watershed are forest (approximately 30 percent), grassland/rangeland (20 percent); agriculture (30 percent; almost all of which are vineyard properties); and wetlands and sparsely vegetated land (which together constitute 5 percent). Developed land (residential, industrial, or commercial) accounts for approximately 15 percent of the watershed (ABAG, 2000, as cited in Water Board, 2008a).

Compared to other San Francisco Bay Area streams, the watershed is relatively free of concrete channelization, major flood control projects, and water supply structures (dams). However, historical ditching and draining of the valley floor has fundamentally altered the routing of peak flows and sediment in lower Sonoma Creek, with consequent and significant increases in sediment delivery, flooding and degradation of aquatic habitat quality. Early maps and accounts describe a large 400-acre marsh complex known as the Kenwood Marsh. The Kenwood Marsh stored winter rain and runoff, and released the water over many months, reducing downstream flooding and increasing summer flows in Sonoma Creek. Freshwater wetland loss is estimated to be greater than 95 percent in the watershed.

Napa-Sonoma Marsh Complex

The Napa-Sonoma Marsh complex, one of the largest remaining contiguous tidal marshes within San Francisco Bay, is located adjacent to San Pablo Bay, where the Napa River and Sonoma Creek discharge into the bay. A 10,000 acre project is in-progress to restore former wetlands that were converted into salt ponds in the nineteenth century (California State Coastal Conservancy 2015, p. 141).

8.2. Water Quality

Low flows and stressful water temperatures during the spring and summer, high concentrations of sand (and fine gravel) in streambeds, fish migration barriers, and habitat simplification are primary water-quality stressors for: a) steelhead in both watersheds; b) a locally rare Chinook salmon run in the Napa River watershed; and c) exceptionally diverse assemblages of native fish species that occur in both watersheds (Water Board, 2009a, pp. 8-12; Water Board, 2008a, pp. 21-27; Leidy, 2007).

As described in the Introduction and Background to this EIR (Section 1.0), channel incision is a significant fine sediment source, and also the primary mechanism for habitat simplification in the Napa River, Sonoma Creek, and alluvial reaches of their tributaries (Water Board, 2009a, pp. 9-10, 52, and

[53] About 20 percent of the land area drains into the five municipal reservoirs, and many of the smaller agricultural reservoirs are nested upstream of these. An additional 10 percent of the watershed area drains into the smaller reservoirs in channel locations outside of the area captured by the municipal reservoirs.

57). As channels have incised, spawning and rearing habitats have been substantially reduced. Channel incision also has separated the channel from its floodplain, and reduced baseflow persistence and the extent and diversity of riparian vegetation (Stillwater Sciences and Dietrich, 2002). Many effects of watershed development, including land-use related increases in storm runoff, reservoir storage, groundwater pumping, streamflow diversions, and channel incision likely have caused or contributed to a reduction in baseflow persistence and magnitude (Water Board, 2009a, pp. 9, 11, 88-90; USFWS, 1968; Emig and Rugg, 2000).

Channel incision has many causes including: a) direct alterations to channels and floodplains that have occurred in both watersheds; b) in the Napa River watershed, construction of four large tributary dams that capture runoff and coarse sediment delivered from approximately 20% of the watershed; and c) in both watersheds, land-cover changes that have increased peak flows in the river (e.g., vineyards, logging of old-growth forests, rural residential development, intensive historical grazing, urban development, and roads) (Water Board, 2008, p.23; Water Board, 2009, p.46).

In addition to channel incision, other significant land-use related fine sediment sources in the Napa River and Sonoma Creek watersheds include soil erosion in vineyards and rangelands; gully erosion, landslides, and headwater channel erosion caused by vineyard development and/or intensive historical grazing; and fine sediment delivery from erosion of unpaved roads (Water Board, 2009a, p. 57; Water Board, 2008a, p. 43).

The Water Board has listed the Napa River and Sonoma Creek as impaired by too much fine sediment and also by channel incision[54], and has developed sediment total maximum daily loads (TMDLs) and habitat enhancement plans to address these problems (Water Board 2008b, and Water Board, 2009b). Across both watersheds, the TMDLs call for 50 percent-or-more reduction in human-caused sediment inputs. To achieve these reductions, the TMDLs implementation plans list regulatory and voluntary actions and schedules to achieve water quality objectives and restore beneficial uses.

In addition to fisheries-related water-quality problems described above, water-contact recreation has been threatened by pathogen and nutrient pollution. In 1976, the Sonoma Creek and Napa River watersheds both were designated as impaired by excessive pathogen and nutrient loads. The Water Board has prepared pathogen TMDLs for both watersheds that were adopted in the mid-2000s. In February of 2014, the Regional Board also adopted a resolution finding the Napa River and Sonoma Creek to be no longer impaired by nutrients (this decision also must be reviewed and approved by the Water Board and the U.S. Environmental Protection Agency). The General Permit, in addition to requiring actions to control sediment discharges and attenuate storm runoff increases, also requires effective management practices to control nutrient discharges, in order to maintain and/or improve water quality conditions with regard to nutrient pollution.

8.3. Groundwater Resources

Groundwater recharge within the project area occurs from:

- Direct infiltration of precipitation into highly permeable alluvial deposits of the Napa Valley and the Sonoma Valley, and also other smaller valley fills (e.g., Chiles Valley);
- Percolation of streamflow into the beds and banks of channels; and

[54] Channel incision degrades habitat complexity and connectivity, and it is a controllable water quality factor that results in a violation of the water quality objective for population and community ecology.

- Deep percolation of rainfall into fractured weathered bedrock[55] that underlies shallow hillslope soils (Luhdorff and Scalmanini, 2011; Farrar et al., 2006).

The relative importance of deep percolation into fractured weathered bedrock as fraction of the total recharge within the project area has not been accounted for in groundwater studies to-date, perhaps because the highly variable nature of fracturing, joints, and faults makes this source difficult to quantify (Luhdorff and Scalmanini, 2011).

The long-term trends in groundwater levels typically appear to be stable within the Napa Valley[56] and elsewhere within Napa River watershed, except for within the central portion of the Milliken-Sarco-Tulocay subarea, where there has been a significant decline (Luhdorff and Scalmanini, 2011). A groundwater model prepared for the Sonoma Creek watershed suggests that groundwater storage in the Sonoma Valley declined by about 10 percent between 1975 and 2000, which is consistent with moderate declines in groundwater levels that have been documented near El Verano, Carriger Creek, and southeast of the City of Sonoma (Farrar et. al., 2006).

The California Department of Water Resources (DWR), as directed under the Sustainable Groundwater Management Act that was adopted into state law in 2014, has designated the Sonoma Valley and Napa Valley as medium priority basins, with regard to development and implementation of Groundwater Sustainability Plans[57].

Within the project area, groundwater provides most of the water supply for vineyards, and almost all of the water supply for rural residential users and wineries (West Yost & Associates, 2005; Farrar et al., 2006). Demand for groundwater, total acreage planted in vineyards, and density of cultivation all are projected to increase by a significant amount over the next few decades (West Yost & Associates, 2005).

In the Sonoma Creek watershed, the Sonoma County Water Agency is developing an integrated approach to increase groundwater recharge and reduce flooding, which emphasizes stormwater recharge as a primary action (ESA et al., 2012). Through this process, construction of off-line Storage/detention basins and infiltration galleries have been identified as potentially promising approaches to decrease flooding and increase groundwater recharge.

[55]Based on the results of seepage experiments performed along local stream channels (Farrar and Metzger, 2003. and Johnson, 1977, as cited in Luhdorff and Scalmanini, 2011), hillslopes underlain by the ash-flow tuff and/or sedimentary units of the Sonoma Volcanics Formation are hypothesized to have the greatest recharge potential.

[56] The alluvial deposits that the valley is comprised of are highly permeable and there is significant recharge in most years. Groundwater levels typically recover from dry periods in subsequent wet or normal water years. Spring groundwater levels in the Upper Napa Valley are typically about 10 feet below the ground surface, and seasonal fluctuations on average are about 10 feet. In the lower Napa Valley, typical spring groundwater levels are about 20-to-30 feet below the ground surface, and seasonal fluctuations average about 10-to-25 feet.

[57] Initial prioritization by DWR is based on an assessment of current and projected future groundwater use as compared to available supply and an assessment of significant environmental, social, and/or economic impacts of groundwater use. DWR notes at the time of the initial prioritization in July of 2015, data were not readily available to consider impacts of groundwater use on streamflow and/or habitat conditions. Designations may change at a future date as this data becomes available. All high or medium priority basins must be managed by Groundwater Sustainability Plans by January 31, 2022, and must achieve sustainable groundwater use by 2042.

In the Napa River watershed, Napa County recently adopted a plan to expand its groundwater monitoring program, to better understand groundwater occurrence and movement including influences of natural recharge and discharge processes, and management actions on groundwater conditions (Luhdorff and Scalmanini, 2013).

8.4. Flooding

Major floods within the project occur in response to atmospheric river events (Ralph et al., 2006; NOAA Atmospheric River Information Page; http://www.esrl.noaa.gov/psd/atmrivers/). Atmospheric rivers are long narrow streams of warm air characterized by high water vapor content, that occur about one-mile up in the atmosphere, and which carry the moisture equivalent of ten-to-fifteen Mississippi Rivers, up from the tropics across the middle latitudes (Dettinger and Ingram, 2013). The largest floods during the period of record for the Napa River and/or Sonoma Creek, which for the Napa River extends back through water year 1940, have occurred within the past three decades on February 17,1986, March 9, 1995, and December 31, 2005.

Flooding can be rapid and intense along the Napa River and Sonoma Creek as a result of the intensity of atmospheric-river storm events, and also the ridge and valley topography that characterizes the project area. Hillslopes within the project area receive more rainfall than adjacent areas in the Napa Valley and/or Sonoma Valley, as a result of orographic effects. Hillslope soils are shallow and runoff often is rapid into steep, confined tributary channels that drain small catchments (typical drainage areas are 2-to-20 mi^2). These tributaries rapidly reduce their gradients and become unconfined when they exit the mountain fronts to the Napa Valley and/or Sonoma Valley. These topographic attributes, the very high rainfall intensities associated with atmospheric river events, and watershed development[58] interact to influence the nature and location of flooding problems.

In the Sonoma Creek watershed, flood hazard/problem areas have been identified near the Town of Kenwood, within the City of Sonoma, and downstream of Schellville (Sonoma County Water Agency, 2011). In the Napa River watershed, flood hazard/problem areas include the City of Napa along the Napa River and also along Napa Creek, along the Napa River within the City of St. Helena, and on small tributaries to the Napa River within the Town of Yountville (Manhard Consulting, 2011). The Napa County Flood Control and Water Conservation District completed approximately 70 percent of the planned construction for the Napa River/Napa Creek Flood Protection Project. Remaining work includes several flood walls and one pump station, the schedule for which is uncertain and dependent upon funding from the US Army Corps of Engineers (Rick Thomasser, County of Napa, personal communication, 2016).

The City of St. Helena recently completed its Napa River flood protection project, and the Town of Yountville also recently completed its flood protection projects on Hopper Creek, and projects recommended along Hinman Creek have not been initiated yet (Town of Yountville, 2014).

[58] Vineyard development, roads, intensive historical grazing, historical logging of old-growth redwood forests, urban development, and rural residential development have all contributed to increases storm runoff peak and volume (Water board, 2009a, p. 39; Water Board, 2008a, p. 24). In addition to these development-related changes in runoff, during the period of Euro-American settlement during the mid-to-late nineteenth century, naturally disconnected tributary channels in the Napa River and Sonoma Creek watersheds were ditched and connected to the mainstem channels; side channels were filled; and floodplain wetlands were ditched and drained (Grossinger, 2012; Dawson and Grossinger, 2002), all of which would have increased streamflow peak in the mainstem channels (i.e., the Napa River and Sonoma Creek).

8.5. Regulatory Setting

8.5.1. Water Quality

Federal Regulations

Applicable laws and regulations related to reasonably foreseeable actions to comply with the proposed WDR permit for Vineyard Properties are described below.

Clean Water Act

The federal Clean Water Act (CWA) (33 U.S.C. § 1257 et seq.) requires states to set standards to protect water quality. The objective of the federal CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Specific sections of the CWA control discharge of pollutants and wastes into marine and aquatic environments, as further discussed below.

Under the CWA, EPA has implemented pollution control programs such as setting wastewater standards for industry. The CWA made it unlawful to discharge any pollutant from a point source into navigable waters, unless a permit was obtained. EPA's National Pollution Discharge Elimination Program (NPDES) controls discharges. Point sources are discrete conveyances such as pipes or man-made ditches. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters.

(USEPA website, as accessed on 30 November 2015 at http://www2.epa.gov/laws-regulations/summary-clean-water-act)

Most agricultural discharges are defined as nonpoint sources, including all of the sources that would be regulated under the General Permit. The authority to regulate these nonpoint sources comes from the state Water Quality Control Act (Porter-Cologne Act), which is discussed below under state authorities.

Clean Water Act Section 303 – Water Quality Standards and Implementation Plans

Title 40 of the C.F.R. pt. 131.2, describes water quality standards as the water quality goals for a particular water body. These water quality goals are the designated uses for the water and the criteria to protect those uses.

A water quality standard defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water, and by setting criteria necessary to protect the uses. States adopt water quality standards to protect public health or welfare, enhance the quality of water, and serve the purposes of the CWA. To serve the purposes of the CWA, as defined in sections 101(a)(2) and 303(c), means that water quality standards should, wherever attainable, provide water quality for the protection and propagation of fish, shellfish, and wildlife, and provide water quality for recreation in and on the water. The standards should consider the use and value of public water supplies, propagation of fish, shellfish, and wildlife, recreation in and on the water, and agricultural, industrial, and other uses including navigation. Such standards serve the dual purposes of both establishing the water quality goals for a specific water body and also serving as the regulatory basis for the establishment of water-quality–based treatment controls and strategies beyond the technology-based levels of treatment required by sections 301(b) and 306 of the CWA.

Title 40 of the C.F.R. § 131.4, states: "Water quality standards consist of a designated use and water quality criteria for such waters based upon such uses." CWA Section 303 states that water quality

standards adopted by the state and approved by the United States Environmental Protection Agency (USEPA) govern actions that affect navigable waters. Pursuant to the CWA, the Water Board adopted the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan). The Basin Plan includes rare and endangered species as a protected beneficial use, stating that: “The water quality criteria to be achieved that would encourage development and protection of rare and endangered species should be the same as those for protection of fish and wildlife habitats generally. However, where rare or endangered species exist, special control requirements may be necessary to assure attainment and maintenance of particular quality criteria, which may vary slightly with the environmental needs of each particular species. The Basin Plan also includes fish migration as a beneficial use, defined as: “Uses of water that support habitats necessary for migration.” Finally, the Basin Plan’s water quality objective relating to population and community ecology states: “[T]he health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors.”

Total Maximum Daily Loads

Pursuant to Section 303d of the Clean Water Act, each state is required to identify those waters within its boundaries for which effluent limits required by Section 301 are not stringent enough to meet water quality standards. The state must establish priority rankings for these waters, and develop Total Maximum Daily Loads (TMDLs) to maintain beneficial uses and improve water quality. In California, the Water Boards prepare the CWA Section 303(d) List of Water Quality Limited Segments Requiring TMDLs. The state must define the pollutants and the sources responsible for the degradation of each listed waterbody, establish Total Maximum Daily Loads (TMDLs) necessary to secure those standards, and allocate responsibility to sources for reducing their pollutant releases. For each impaired waterbody, the state must identify the amount by which both point and nonpoint source pollutants need to be reduced in order for the waterbody to meet ambient water quality standards. Seasonal variations in loading and a margin of safety are considered when TMDLs are established.

As described in detail earlier in this chapter, Total Maximum Daily Loads have been established for sediment and also for pathogens in both the Napa River and Sonoma Creek watersheds, and the proposed WDR permit for Vineyard Properties is a key action specified in the implementation plans for both sediment TMDLs.

The Napa River and Sonoma Creek are listed as impaired by nutrients. However, there have been substantial efforts since the early 1970s to regulate and control municipal sewage and other industrial discharges into the Napa River and Sonoma Creek. Based on the results of spatially extensive sampling programs conducted in 2004, 2009, and 2011-2012 to characterize water quality conditions with regard to nutrients, in February of 2014 the Water Board adopted a resolution finding the Napa River to be no longer impaired by nutrients. This decision now also must be reviewed and approved by the State Water Board and the U.S. Environmental Protection Agency to remove the Napa River and Sonoma Creek from the 303(d) list as impaired by nutrients. The General Permit, in addition to requiring actions to control sediment discharges and attenuate storm runoff increases, also requires effective management practices to control nutrient discharges, in order to maintain and/or improve water quality conditions with regard to nutrient pollution.

Section 404 of the Clean Water Act

Under Section 404 of the Clean Water Act, the US Army Corps of Engineers (Army Corps) regulates the discharge of dredged and fill material (e.g. fill, pier supports and piles) into waters of the United States, including the Napa River and Sonoma Creek, tributaries to each, and adjacent wetlands. The Army Corps issues pre-written permits with general conditions for several categories of dredge and/or

fill activities under its Nationwide and Regional General Permit Programs, and also through individual permits for larger or more sensitive projects. More information can be found on the website for the San Francisco District Office of the Army Corps at: http://www.spn.usace.army.mil/Missions/Regulatory/HowtoApplyforaPermit.aspx. The Army Corps implements Section 404 of the CWA, and USEPA has oversight authority. Section 404(b)(1) of the CWA establishes procedures for the evaluation of permits for discharge of dredged or fill material into waters of the United States.

With regard to the General Permit, BMPs installed or constructed in waters and/or wetlands including road crossings, and biotechnical erosion control techniques likely would qualify for coverage under one or more of the Nationwide Permits (e.g., for maintenance activities, bank stabilization, minor discharges, etc.). Dischargers would be required to comply with the general conditions for discharge as specified therein, including standard conditions for protection of water quality during and following construction, to minimize the amount of fill and/or impact to the functions of wetlands and waters, and the requirement to obtain a Clean Water Act Section 401 permit from the Regional Water Quality Control Board.

Section 401 of the Clean Water Act

Under Section 401 of the CWA, water quality certification (WQC) is required for any activity that requires a federal permit or license, and that may result in discharge into navigable waters. To receive certification under Section 401, an application must demonstrate that activities or discharges into waters are consistent with state effluent limitations (CWA Section 301), water quality effluent limitations (CWA Section 302), water quality standards and implementation plans (CWA Section 303), national standards of performance (CWA Section 306), toxic and pretreatment effluent standards (CWA Section 307), and "any other appropriate requirements of State law set forth in such certification" (CWA Section 401). In California, the authority to grant water quality certification is delegated to the State Board, and in the San Francisco Bay area, applications for certification under CWA Section 401 are processed by the Water Board. The Water Board certifies that the proposed fill or dredge activity would not violate water quality standards, and/or further condition the discharge as needed to protect water quality.

In addition to complying with the terms and conditions of the General Permit for Vineyard Properties, the Water Board also would require Section 401 permit applications for the following BMPs: decommissioning roads, soil biotechnical stabilization projects in stream channels and/or gullies, building a detention basin (where the construction site overlaps with wetlands and/or waters), and/or building a new storm-proofed road segment. Through the conditions for discharge under the WDR permit for vineyard properties and/or as applicable related Section 401 Water Quality Certification permit(s), the Water Board would impose conditions on the activity to minimize, avoid and mitigate potential impacts to water quality and hydrology.

State Regulations

Porter-Cologne Water Quality Control Act

The Water Board's legal authorities to require water pollution control actions are derived from the State's Porter-Cologne Water Quality Control Act (Porter-Cologne) and the federal Clean Water Act. Porter-Cologne gives the Water Boards the authority to issue waste discharge prohibitions, waste

discharge requirements (WDRs), and/or waivers thereof, to control discharge of pollutants from point-and-nonpoint sources[59] into the waters of the State (California Water Code 13000 et seq).

In 2004, the State adopted a policy for implementation and enforcement of its nonpoint source pollution control program (NPS program), which requires all nonpoint pollution sources that could affect water quality shall be regulated under waste discharge requirements or waivers, and/or waste discharge prohibitions. Under the adopted NPS program, waivers of waste discharge requirements must be conditioned on a monitoring program to ensure that water quality is protected. The proposed WDR for vineyard properties is consistent with the Nonpoint Source Pollution Control Policy.

Local Regulations

Napa County

The Napa County Planning Division regulates development of new vineyards and vineyard replants located on hillsides. Its process is guided by the Napa County Conservation Regulations (Conservation Regulations) that were enacted in 1991 (Napa County Code, Chapter 18.108). Beginning in 2000, the County also has conducted a broader review of environmental impacts of the development of new vineyard under CEQA. The Conservation Regulations set the requirements and guidelines for preparing, reviewing, and approving Erosion Control Plans (ECPs) for grading and vegetation removal associated with new or replanted vineyards on slopes greater than five percent. New vineyards and replants on valley floor sites (slopes of less than five percent) are exempt from the erosion control plan requirements of the Conservation Regulations.

The Napa County ECP process can follow one of two paths (Napa County Code, Chapter 18.108):

- Track I – Applies to new vineyards and those developed since 2000, and requires discretionary approval by Napa County (subject to CEQA review).
- Track II – Applies to vineyard replants and is a ministerial action, provided the replant falls within the existing vineyard footprint and there are no substantial changes to site drainage or layout. Most replanted vineyards proceed through the Track II process.

Track I requires hydrologic and erosion analyses to demonstrate that no net increases in soil loss and peak runoff[60] will occur over pre-project conditions. Furthermore, the county's Conservation Regulations require stream setbacks for new vineyards that range from 35-to-150 feet, depending on stream designation and the slope of the land adjacent to the stream channel (35-feet for valley floor sites, and up to 150 feet where steep slopes abut channels). Replants, if completed within the original vineyard footprint, are not required to meet the stream setback criteria.

Napa County-required stream setbacks apply to all watercourses designated by a solid or dashed blue-line on United States Geological Survey (USGS) topographic maps, and/or any watercourse that has: a) a well-defined channel with a depth greater than four feet, b) banks steeper than 3:1, and c) contains hydrophilic or riparian vegetation. Many headwater channels do not meet the county's definition of a watercourse, including most cascade and some step-pool channel reaches that provide spawning and

[59] Point sources typically are discharges of pollutants from a discrete conveyance (or pipe). Nonpoint sources are everything else that has not been defined as a point source (e.g., vineyards, rangelands, roads, etc.).

[60] The peak runoff requirement was established more recently as an implementation action, following update of the County General Plan in 2008.

rearing habitat for steelhead. This is because many of these channels are not designated by a solid or dashed blue-line on USGS maps, and/or they are less than four feet deep (Dietrich et al., 2004).

There are no requirements for retroactive erosion controls on vineyards that existed on hillsides prior to enactment of the ordinance in 1991. However, these existing vineyards are required to submit ECPs at the time of replanting. New vineyard projects proposed on slopes exceeding 30 percent also require issuance of a County use permit, and new vineyards proposed on slopes exceeding 50 percent require a variance.

Sonoma County

New vineyard development and replants in Sonoma County are guided by the Grading, Drainage, and Vineyard and Orchard Site Development Ordinance (VESCO). The Sonoma County Agricultural Commissioner's Office implements and enforces VESCO. VESCO requires a permit for any grading, drainage improvement, or site development associated with new or replanted vineyards. VESCO permits are issued at two levels that take into account soil type, soil erosivity, and slope as follows (Sonoma County Code, Chapter 11.08.010):

- Level I – Applies to new vineyards or replants developed on slopes less than or equal to 10 to 15 percent and does not require ECP documentation or verification of project completion.
- Level II – Applies to new vineyards or replants on slopes greater than 10 or 15 percent and requires the project proponent to submit an ECP that is reviewed by the VESCO staff. VESCO staff conducts post-construction review to confirm that ECP design plans were followed and implemented appropriately.
- Both Level I and Level II projects are required to adhere to the best management practices and standards described in the Best Management Practices for Agricultural Erosion and Sediment Control manual (Sonoma County Agricultural Commissioner's Office, 2013).

VESCO and the County General Plan establish stream setback requirements that range from 25 feet to 50 feet, depending on slope of the adjacent land, soil type, and stream designation.

New vineyards on slopes greater than 50 percent are prohibited and there are no retroactive erosion control requirements for vineyards constructed prior to VESCO. Existing vineyards are required to comply with VESCO at the time of replanting with more oversight occurring on properties containing highly erodible soils.

Although permits issued through VESCO typically are ministerial (and therefore exempt from review under CEQA), VESCO includes an extensive pre-application process and standard terms and conditions that are intended to reduce potential environmental impact to a less than significant level.

8.5.2. Groundwater Resources

State Regulations

Sustainable Groundwater Management Act – adopted in 2014, establishes role of local government agencies to develop plans for sustainable management of groundwater aquifers by 2020/2022, and to achieve groundwater sustainability by 2040/2042 (the earlier dates apply to basins that are designated by DWR as being in critical overdraft). Groundwater sustainability plans must consider all beneficial uses and users of groundwater within a basin. Plans must include measureable objectives and interim milestones that ensure sustainable uses of groundwater (Water Education Foundation, 2015).

Local Regulations

Napa County

The Napa County Board of Supervisors adopted a groundwater ordinance in 1996 (County Code Chapter 13.15), revised in 2003, to regulate the extraction, use, and preservation of the County's groundwater resources. Compliance with this ordinance applies to development of new water systems or improvements to an existing water system that may use groundwater. The ordinance contains specific requirements for agricultural land development or re-development activities located on parcels within groundwater deficient areas. The ordinance identifies issuance of groundwater permits based on three types of applications (exempt, ministerial, and required) and the process by which compliance with the ordinance is determined. Applications for a groundwater permit require identification of existing and future uses of any existing water system which is supplied by groundwater, potential alternative water sources, the number of existing and future connections, intent of groundwater use, and an assessment of the potential impacts to the affected groundwater basin. Because groundwater resources are highly valued in the County, further guidance for activities conducted within the Milliken-Sarco-Tulocay (MST) groundwater deficient area have been developed, as detailed below.

Guidelines for Projects within the Milliken-Sarco-Tulocay Groundwater Deficient Area

The Milliken-Sarco-Tulocay area is a groundwater deficient area. Due to the sensitive nature of the MST groundwater basin, the County requires special consultation to determine the need for a groundwater permit. This particularly applies to construction projects, erosion control plans for new or expanded agricultural projects, and new or expanded wineries that intend to use groundwater from the MST basin. Depending on the governing authority (either the Environmental Management or Conservation Development and Planning Department), the appropriate department will determine which of the following three situations is applicable to the proposed project and its potential effect on the MST groundwater basin.

No groundwater permit required

A groundwater permit would not be required if agricultural land development is less than or equal to a 0.25 acre, for additions or alterations to existing dwellings, or for swimming pools that are not filled with water from the MST.

Ministerial groundwater permit is required

Ministerial groundwater permits for new residential units and agricultural land re-development require compliance with water use conditions. For new residential units, the total amount of water used on the parcel must be less than 0.6 acre-feet per year (ac-ft/yr). Re-development of agricultural land must limit the total water use on the parcel to an average of 0.3 acre feet per acre per year calculated as an average over a three year period, with no yearly use exceeding the total average by more than 15 percent. All water use must be reported to the Department of Public Works under both types of development where a ministerial groundwater permit is issued.

A groundwater permit is required

Groundwater permits are issued upon compliance with the "no net increase" and "fair share" standards. The "no net increase" standard encourages applicants to reduce their impact on the MST by giving up an existing groundwater use, changing practices to reduce consumption, or by importing water from outside the MST (only applies for agricultural activities). If the additional water required by the proposed

use would not meet the “no net increase” standard, the Planning Department or applicant must conduct a California Environmental Quality Act (CEQA) review to assess the potential environmental impacts of the proposed use. Additionally, the proposed use must comply with the “fair share” standard that no more than 0.3 acre-feet (ac-ft) of groundwater per acre of land owned are used.

8.5.3. Flooding

Federal Regulations

Federal Flood Insurance Program

Congress, alarmed by increasing costs of disaster relief, passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts is to reduce the need for large publicly funded flood control structures and disaster relief by restricting development on floodplains.

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development on floodplains. FEMA issues Flood Insurance Rate Maps (FIRMs) for communities participating in the NFIP. FIRMs delineate flood hazard zones in the community.

Local Regulations

Napa County

Napa County Code, Section 16.04.260 defines floodplain management as “… the operation of an overall program of corrective and preventive measures for reducing flood damage and preserving and enhancing, where possible, natural resources in the floodplain, including but not limited to emergency preparedness plans, flood-control works and floodplain management regulations”. Floodplain management regulations are designed to control development in flood-prone areas by providing standards for the purpose of flood damage prevention and reduction. Floodplain management permits are part of this process for the purpose of ensuring that all proposed development in a special flood hazard area (SFHA) is designed in compliance with floodplain management standards. The County Board of Supervisors adopted this section of the Code on February 5, 1980. Adoption of the code allowed Napa County to participate in the Flood Insurance Program developed by the Federal Emergency Management Agency (FEMA) thereby making flood insurance available to Napa County residents. The following activities within a SFHA require a floodplain management permit: 1) Depositing or removing any material; 2) Excavation; 3) Constructing, installing, altering or removing any structure or facility; or 4) Altering any embankment. Agricultural activities as defined in Section 16.04.090 of Napa County Code are exempt from floodplain management permits.

Sonoma County

Chapter 11 of the Sonoma County Code sets forth regulations designed to maintain the free flow of flood waters through waterways and channels by restricting construction, deposition of materials, or any other act, which would obstruct or diminish the flood flows. It requires a permit for any project that could potentially impair, impede or obstruct the natural flow of storm waters or other water running in a defined channel, natural or man-made, or cause the obstruction of any such channel. The ordinance also requires a permit for any activity that deposits any material in the channel, or alters the land surface in a way that reduces the channel carrying capacity. Additional provisions include requiring a permit to construct, alter or repair any storm water drainage structure, facility or channel.

8.6. Impact Analysis Methods

Thresholds of Significance

For this analysis, an impact pertaining to Hydrology and/or Water Quality was considered significant under CEQA if it would result in any of the following environmental effects, which are based on professional practice and State CEQA Guidelines Appendix G (14 CCR 15000 et seq.). Thus, a significant impact would result if:

a) The Proposed Project would violate any water quality standards or waste discharge requirements;

b) The Proposed Project would 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;

c) The Proposed Project would substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on-or-off-site;

d) The Proposed Project would substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

e) The Proposed Project would 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;

f) The Proposed Project would otherwise substantially degrade water quality;

g) The Proposed Project would 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;

h) The Proposed Project would place within a 100-year flood hazard area structures which would impede or redirect flood flows;

i) The Proposed Project would 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; or

j) The Proposed Project would expose people or structures to inundation by seiche, tsunami, or mudflow.

8.7. Hydrology and Water Quality Impacts and Mitigation Measures

Impact 8.1 Compliance with the General Permit would enhance water quality in the Napa River and Sonoma Creek watersheds.

The project establishes General Waste Discharge Requirements for vineyard properties to attain and/or maintain water quality standards. As described in the discussion of Impact 6.1a, road sediment discharge, and land-use related erosion of headwater channels, gullies, and landslides will all be reduced substantially (on average by 50 percent) within the Vineyard Properties enrolled in the permit. We estimate that 90 percent of planted vineyard acreage and about 70 percent of the total vineyard property acreage would be enrolled in the permit or otherwise meet sediment and storm runoff

discharge performance standards. This represents a significant contribution toward achievement of the load reductions called for in the sediment TMDLs. ***The effect of the project on attainment of water quality objectives will be beneficial.***

Impact 8.2 The overall effect of actions taken to comply with the General Permit would be beneficial, enhancing groundwater recharge.

The General Permit requires actions to control sediment discharges and attenuate storm runoff increases that occur as a result of development and management of farms and roads, and also to control pesticide and nutrient discharges from farms (See Section 1.0, Introduction). Actions to control (attenuate) storm runoff increases by definition also enhance groundwater recharge. BMPs to achieve nutrient and pesticide performance standards would not reduce groundwater recharge: these BMPs include calibrating pesticide sprayers, testing plant tissue and soils (for nutrients), applying fertilizers via drip irrigation systems, integrated pest management practices (to reduce use of pesticides), safe storage of pesticides, planting cover crops (which could increase recharge), and/or wellhead protection (See Section 2.5, Reasonably Foreseeable Means of Compliance).

BMPs that may be employed on unpaved roads, by design, will disperse storm runoff that is concentrated by the roads, and as a result, also will enhance infiltration of runoff into soils by reducing runoff velocity, volume, and peak at a given location, and/or by increasing the hillslope length over which the runoff travels, and therefore, contributing to local increases in groundwater recharge These beneficial effects on groundwater recharge would be very large in scale, because up to 200 miles (see Discussion of Impact 8.4a) of unpaved roads could be treated to disperse runoff at hillslope vineyard properties that would be enrolled in the General Permit.

BMPs that may be employed to stabilize eroding gullies, landslides, and/or head-cutting or down-cutting channels would enhance vegetation cover and local sediment deposition in landslides, gullies, and headwater channels contributing to modest local increases in infiltration of rainfall and/or surface runoff, and consequently modest local enhancement of groundwater recharge.

In vineyards, BMPs that would be employed to enhance ground cover, reduce tillage, and/or slow or detain storm runoff, also would enhance local groundwater recharge. The only other BMPs that could be employed at some new or existing vineyards are diversion ditches and/or engineered subsurface drainage pipes, which are constructed for the purpose of controlling soil erosion within the vineyard. As compared to the baseline, construction of a diversion ditch and/or installation of subsurface drainage pipes would increase runoff velocity, and as such (when implemented in isolation, without also implementing complimentary measures to spread, sink, or slow the runoff), could result in a local decrease in groundwater recharge.

Diversion ditches, by design, redirect surface runoff that discharges into a vineyard or redirect surface runoff generated within the vineyard. Engineered subsurface drainage pipes are designed to control vineyard soil erosion by intercepting surface sheetflow before it becomes concentrated. Drop inlets installed at the ground surface are connected into the subsurface pipes, which then intercept and rapidly convey runoff through the vineyard.

The effects and relative significance of engineered drainage (e.g., diversion ditches and subsurface drainage pipes) as a mechanism or cause of storm runoff increases (and therefore, also decreases in groundwater recharge) are an issue of some controversy (California Court of Appeal, *Living Rivers Council vs. State Water Resources Control Board*, 2014). Based on extensive field surveys throughout the Napa River watershed, Water Board staff concludes that drainage pipes and ditches can contribute

to significant increases in storm runoff (and consequently also to decreases in groundwater recharge), where a hillslope vineyard replaces forest cover and/or is developed on soft sedimentary bedrock (Water Board, 2009a, p. 18; Napolitano, 2008). Also, as described in Section 1.1, other significant changes to vegetation and/or soil attributes also have occurred at vineyard properties: a) as part of the process of vineyard development; c) to develop and maintain unpaved roads; and/or d) as a result of intensive historical grazing (see also, Water Board, 2009a, pp. 16-21, and pp. 42-45). Prominent among these changes, in terms of effects on recharge, runoff, and erosion (and also with regard to response potential) are when:

a) A forest is converted to vineyard, greatly reducing rainfall interception, evapotranspiration, and soil permeability and infiltration capacity;

b) Where soils and weathered bedrock are deeply ripped - to develop a fairly homogenous, deeper, and more favorable environment for vineyard root growth-, which fundamentally disrupts natural drainage through soil macropores and/or deep infiltration into bedrock;

c) Use of tractors and other heavy equipment to conduct agricultural activities, which causes soil compaction and also disrupts connections between natural soil macropores; and/or

d) Development and maintenance of extensive networks of roads (typical road density on vineyard properties is about 4.5 miles per mi^2 of property)[61].

Where hillslope sites were intensively grazed during the historical period, the soil permeability and infiltration capacity in many cases has not recovered yet, and gullies and shallow landslides often are actively eroding, and/or channels are actively downcutting and/or head-cutting, making these sites extremely vulnerable to additional temporal and/or spatial concentration of runoff that may occur as a result of vineyard development and agricultural activities.

Therefore considering all of the above potential causes of storm runoff increases, in developing the General Permit the Water Board has specified the following performance standards to attenuate storm runoff increases (and also conversely to enhance groundwater recharge) at existing and new hillslope vineyards:

> **Storm Runoff from an existing hillside vineyard**: shall not cause or contribute to downstream increases in bed and/or bank erosion. At sites where hillslope vineyards discharge into an unstable area[62] whether or not concentrated runoff from the vineyard is the primary cause or could be a contributing factor to the erosion, as a precaution the Water Board shall require as technically and economically feasible that additional BMPs be implemented to attenuate vineyard storm runoff. For example, these may include no-till cover crops, application of composted mulch, soil amendments to increase organic matter content (e.g., crop residues, manure, and/or compost), installation of level-spreaders, disconnecting existing drainage pipe systems, and/or construction of detention basins and/or wetlands. Also, as technically and economically feasible, the vineyard owner/operator shall implement soil bioengineering and/or biotechnical techniques to control erosion in actively eroding gullies and landslides, and also in channel reaches that are down-cutting and/or head-cutting. Examples soil bioengineering and/or biotechnical techniques are described in in Marin Resource Conservation District (2007).

[61] Road cuts intercept subsurface drainage, speeding up runoff rate. Roads also usually change the distribution of runoff along the hillslope, and/or the distribution of mass along a hillslope.

[62] These include hillslope vineyard discharges into down-cutting and/or head-cutting channels, gullies, and/or or landslides,

Storm runoff from a new/proposed hillside vineyard: a) the peak storm runoff in 2-, 10-, 50-, and 100-year (24-hour duration) events following vineyard development shall not be greater than the pre-development values; and b) the vineyard shall not cause or contribute to downstream increases in bed and/or bank erosion.

In evaluating the potential impacts of engineered drainage on the hydrology of the site, we note that if engineered subsurface drainage pipes are not already in-place, few if any existing vineyards would be expected to install subsurface drainage pipes following adoption of the General Permit. This is because, with the exception of timing installation with a replant, earth moving and excavation associated with installation of subsurface drainage pipes would be very disruptive and quite damaging to an existing vineyard. Also, at the time of a replant, if engineered drainage was installed, it would have to meet the performance standards for soil erosion ***and*** storm runoff. At existing hillslope vineyards discharging into a gully, landslide, and/or head-cutting or down-cutting channels, in order to attain the performance standard for storm runoff, additional BMPs to sink, spread, and/or slow runoff would need to be implemented (as technically feasible and economically practicable). Therefore, the net result, as compared to the baseline, would be to enhance groundwater recharge.

At new/proposed vineyards however, it is possible that engineered drainage could be adopted at sites as part of an overall approach/strategy to control vineyard erosion. Based on projections contained in the General Permit updates for Napa and Sonoma counties, as many as 2000 acres of additional vineyards could be planted in the Sonoma Creek watershed, and up to 6,000 acres in the Napa River watershed[63]. Therefore, it is possible that subsurface engineered drainage pipes could be installed on several thousand acres-or-more of new vineyards. However, because all new/proposed hillslope vineyards ***also*** must meet the performance standards for storm runoff, at sites where engineered drainage is employed, at worst, the effect on groundwater recharge would be neutral (because if peak runoff does not increase, groundwater recharge does not decrease). As a result, engineered drainage facilities that do not meet the storm runoff performance standard are not a reasonably foreseeable means of compliance.

Considering all of the above***, the effect on groundwater recharge of actions taken to comply with the General Permit at any individual vineyard property at worst would be neutral***, and at most vineyard properties would be beneficial - groundwater recharge would increase. At the scale of the project area, ***the overall effect of compliance actions on groundwater recharge would be beneficial, increasing groundwater recharge***.

[63] The General Plan update for Sonoma County (provides a projection for additional vineyard development from 2002 through 2020 in the Sonoma Creek watershed, which is ≤ 1500 acres (Sonoma County, 2006). Lacking more recent projections, we assume this rate (approximately 100 acres per year) applies also to the 20-year period following adoption of the General Permit. The Climate Action Plan for Napa County (ICF, 2012) includes an estimate of approximately 7500 aces of additional vineyard development throughout Napa County between 2005 through 2030, or about 300 acres per year. Because this estimate is not further subdivided geographically, and lacking more recent projections, we assume this rate (300 acres per year) also will apply to the 20-year period following General Permit adoption, and that all of the project vineyard development would occur in the Napa River watershed. Our assumptions likely overestimate the acreage of projected future vineyard development within the project area that could be enrolled in the General Permit.

Impact 8.3 Actions taken to comply with the General Permit would result in a beneficial reduction in storm runoff.

As presented in the discussion of Impact 8.2, the effect on storm runoff of actions taken to comply with the General Permit at any individual vineyard property at worst would be neutral, and at most vineyard properties would be beneficial – storm runoff would be attenuated. At the scale of the project area, the ***overall effect of compliance actions on storm runoff would be beneficial, attenuating storm runoff peak***.

Impact 8.4a Actions taken to comply with the General Permit would result in substantial long-term beneficial reductions in erosion and siltation.

The General Permit requires actions to control sediment discharges and storm runoff increases from farms and roads, toward the goal of achieving 50 percent reductions in sediment delivery to channels within vineyard properties in the Napa River and Sonoma Creek watersheds as called for in the sediment TMDLs (Water Board, 2008b and 2009b).

As presented in Impact 8.2, as many as approximately 170 miles of unpaved roads would be hydrologically disconnected, and diversion and plug potential at road crossings[64] would be addressed, resulting in a 50 percent-or-greater reduction in road-related sediment delivery to channels at vineyard properties enrolled in the General Permit. Total reduction in sediment delivery to channels (sediment savings) from efforts to control road-related erosion is estimated as follows:

Area of vineyard properties enrolled in the General Permit ≤ 125,000 ac[65], which is 195 mi^2

Average Road Density (mi/m^2) ≈ 4.5 mi/mi^2 (Napolitano, 2006)

% length of roads that are unpaved ≥ 90 percent

Miles of unpaved vineyard property road (mi) = (195 mi2)*(4.5 mi/mi2)*(0.9) = 690

Minimum Sediment Savings[66] (metric tons) = (31 t/mi/yr)*(791 mi unpaved) = 24,000 metric tons per year.

The General Permit would require implementation and/or maintenance of effective soil erosion control practices at approximately 54,000 acres of existing vineyards. This corresponds to slightly more than 90 percent of the total planted acreage in the project area. The General Permit would also apply to all new vineyards ≥ 5 acres in size, affecting an estimated several thousand acres of additional new vineyards that are projected to be planted. As indicated in the Introduction to the EIR, within the project area, it is

[64] Diversion potential is addressed through construction of a critical dip on the road prism at the approach to the crossing, but does not involve any excavation of the crossing itself. Plug potential is addressed through installation of a single-post trash rack (e.g., a piece of rebar) near the culvert inlet. These BMPs are described in detail in Section 2.5.

[65] This includes 109,000 acres of existing vineyard properties and an estimated 16,000 acres of new/proposed vineyard properties that may be developed in future years and would be enrolled in the General Permit.

[66] Baseline value for sediment delivery from unpaved roads is approximately 50 yd^3 per mi per year (Water Board, 2009b), and 1 yd^3 of sediment equals 1.22 metric tons (assuming bulk density 1.6 $tons/m^3$). In our analysis, we estimate that attainment of performance standards for percent hydrologic connectivity, trash racks, and diversion potential, will result in a 50% reduction in sediment delivery to channels. Calculations are as follows: 50 yd^3 per mi per yr * 1.22 metric tons per yd^3 * 0.5 (fraction reduced) = 31 metric tons per mile per year.

the typical practice for winter cover crops to be planted at all vineyards. Valley floor vineyards, which constitute about two-thirds of the total acreage are not subject to county requirements to prepare erosion control plans, which typically involve planting cover crops. Because the General Permit would require valley floor vineyards to meet performance standards for erosion control, additional sediment savings are anticipated under the General Permit. Minimum sediment savings at valley floor vineyards are estimated as follows:

Acreage of valley floor vineyards enrolled in the General Permit ≤ 54000 ac * 2/3 = 36,000 ac

Sediment savings per acre under General Permit[67] = 0.1 metric tons per ac per year

Total = 36,000 ac * 0.1 metric tons per acre per year = 3,000 metric tons per year

In addition to the above, the General Permit includes performance standards for storm runoff. Where an existing hillslope vineyard discharges into an unstable area[68], soil bioengineering or biotechnical techniques will be implemented to control erosion. Therefore, the effect of compliance with the storm runoff standard would be to reduce erosion and siltation at existing vineyards that are discharging into unstable areas. Minimum sediment savings from management actions to control gully, landslide, and headwater channel erosion, under the General Permit are calculated as follows:

Hillslope Vineyard Properties: ≥1/3 of total enrolled = 125000 ac *1/3 = 41,700 ac = 169 km^2

Estimated current rate of sediment delivery to channels from gullies, shallow landslides, and/or headwater channel erosion caused by concentration of storm runoff at hillslope vineyard properties[69] = 80 metric tons/km^2/yr

Estimated reduction in erosion rate following BMP implementation = 50%

Total sediment savings = 80 metric tons/km^2/yr x 169 km^2 x 50% ≈ 6,700 metric tons per year

Other sediment savings also will occur including: a) reduction in the rate of channel incision (as a result of the requirements to achieve the hillslope vineyard runoff and the road performance standards); and b) additional sediment savings at new/proposed vineyards (and also at existing roads on these properties) that would occur as a result of the requirement to attain the General Permit performance standards. However, it is not possible to estimate either of categories of sediment savings without engaging in speculation. Therefore, at a minimum, **total sediment savings from the General Permit would be ≥ 33,700 metric tons per year**.

Finally, we note that although engineered drainage could be installed at some new/proposed vineyards (as presented in discussion of Impact 8.2), where engineered drainage would be installed, it would have to meet the performance standards for soil erosion ***and*** storm runoff. The performance standard for storm runoff reads as follows:

---

[67] Through the requirement to establish ground cover prior to onset of rainy season, we assume an average reduction in erosion rate at valley floor vineyards = 0.9 metric tons per acre (1 English ton per acre), and a sediment delivery ratio (SDR) equal to 10 percent: 0.9 t/ac/yr * SDR (0.1) ≈ 0.1 metric tons per acre per year.

[68] Unstable areas include head-cutting and/or down-cutting channels, gullies, and landslides.

[69] The average value for sediment delivery to channels from these processes at all hillslope properties in the Napa River watershed approx. 80 metric tons/km^2/yr (see Water Board, 2009a, Table 7a, "Gullies and Shallow Landslides …"). This value is calculated as follows: 30,000 metric tons per year/584 km^2 (drainage area of Napa River at Soda Creek) ÷ (0.62, fraction of land area downstream of reservoirs) = 83 metric tons per km^2 per year.

Storm runoff from a new/proposed hillside vineyard: a) following vineyard development, the peak storm runoff in 2-, 10-, 50-, and 100-year (24-hour duration) events shall not be greater than the pre-development values; and b) following development, the vineyard shall not cause or contribute to downstream increases in bed and/or bank erosion.

Considering all of the above actions to reduce sediment discharges and attenuate storm runoff from vineyard and unpaved roads, the EIR concludes that the ***actions taken to comply with the General Permit would result in substantial long-term beneficial reductions in erosion and siltation.***

Impact 8.4b Construction activities that would occur to comply with the General Permit could result in temporary increases in fine sediment delivery to stream channels, and resultant sedimentation.

Although the long-term effect of actions taken to comply with the General Permit, including BMP construction, would be a substantial reduction in the delivery of sand and finer sediment to stream channels, short-term erosional adjustments could occur at some BMP sites following construction, which could cause temporary increases in fine sediment delivery to channels. In particular, construction, repair, replacement, and/or retrofit of road crossings over stream channels (that could occur when decommissioning a road segment, and/or constructing a new storm-proofed road segment), and/or soil bioengineering projects, where heavy equipment is used to reshape and stabilize eroding banks and/or down-cutting channels may be vulnerable to some erosional adjustments during and soon after construction until vegetation becomes well established at these sites.

Eroded sediment could be deposited in water bodies, including stream channels that support sensitive and/or listed aquatic wildlife species, and these potential short-term and temporary increases in erosion and fine sediment delivery to channels are considered a ***significant impact***.

Mitigation Measure 8.4b

As presented in Chapter 6, Biological Resources (Impact 6.1b), to avoid significant increases in sediment delivery to channels and resultant sedimentation that could arise from construction activities undertaken to comply with the General Permit, the General Permit incorporates a suite of Construction Activity Controls to avoid and minimize potential pollutant discharges that may be associated with construction activities and/or post-construction erosion in areas that were disturbed including all of the following conditions that are enforceable under the General Permit, as applicable to a given site. Mitigation Measures, BR-2 through BR-8 (as described in detail in Section 6.3.3), also apply to address potential short-term construction-related increases in erosion and sedimentation impacts, which involve: temporal limits on construction activities (BR-2), construction site management actions (BR-3), requirements for erosion control (BR-4), limitations on heavy-equipment use (BR-5), limitations on earth moving/grading (BR-6), limitations on vegetation removal and requirements for replanting (BR-7), and limitations on work in streams and/or p0nded areas (BR-8).

Impact significance after mitigation

Mitigation Measures **BR-2** through **BR-8** would reduce the amount of erosion and sediment deposition in streams that could occur as a result of BMP construction activities taken to comply with the General Permit to a less than significant level. The small amount of sediment that would enter streams after implementing the construction activity controls would not be expected to cause adverse impacts. As a result, the short-term construction-related impacts would be reduced to a ***less than significant level***.

Impact 8.5 Compliance with the General Permit over the long-term will reduce sediment delivery to San Pablo Bay which could increase algal blooms and/or adversely impact maintenance and/or restoration of tidal wetlands.

In response to the Notice of Preparation for the EIR, the California Farm Bureau Federation commented that potential impacts of reduced sediment supply to San Pablo Bay, resulting from actions taken to comply with the General Permit, should be evaluated including: a) the possibility that reduced suspended sediment concentrations in San Pablo Bay could cause an increase in phytoplankton growth, decreased dissolved oxygen, and fish kills; and b) the possibility that reduced sediment supply to San Pablo Bay could impair maintenance and/or restoration of tidal wetlands.

Potential impacts of a reduction in sediment supply to San Pablo Bay resulting from compliance with the General Permit are evaluated herein. As explained in more detail below, neither of these conditions is expected to occur as a result of actions taken to comply with the General Permit.

Potential Impacts of Sediment Supply Reduction on Dissolved Oxygen and Fish Kills

Conceptually, the potential for a decrease in suspended sediment concentration to impact dissolved oxygen concentration, would operate as follows: as suspended sediment concentration decreases, a) water clarity increases; b) light penetration into the water is enhanced; c) phytoplankton growth increases[70]; d) resulting in greater respiration by the phytoplankton; e) which in turn demands greater oxygen; and e) resulting in a decline in dissolved oxygen concentration in the water column. If dissolved oxygen concentration becomes very low, it can cause fish kills.

Under current conditions in San Pablo Bay, turbidity is lowest (water clarity is highest) during the spring and the fall when tidal energy is at a minimum. These are the times of the year when phytoplankton growth is a potential concern (Senn et al., 2014). At all other times of the year, turbidity is usually very high as a result of wind and tidally-driven re-suspension of fine sediment, and as a result, phytoplankton growth is limited. In turbid waters, light penetration is the limiting factor controlling phytoplankton growth. In clearer waters, photosynthesis is not restricted and nutrient loading becomes the limiting factor for phytoplankton growth.

Beginning in 1999, a significant and persistent decline in suspended sediment concentration in San Pablo Bay was documented (Shoellhamer, 2009). Schoellhamer notes that the most plausible explanation for the significant decrease in suspended sediment concentration (about a 33 percent decrease in 1999-2008 as compared to 1975-1998) – and conversely a significant increase in water clarity (and potential phytoplankton growth[71]) – is:

> "the depletion of an erodible pool of sediment, with origins dating back to the Gold Rush. This erodible pool consisted of fine-grained particles that were washed out of ancient Sierra Nevada river beds that were exposed by the hydraulic mining water cannons" (Schoellhamer, 2009).

[70] Most importantly, we note that San Francisco Bay (SFB), including San Pablo Bay, is a nutrient-enriched estuary (Senn et al., 2014). Enrichment of nutrients is the primary underlying driver for potential water quality impacts including depression of dissolved oxygen concentration. "Research and monitoring in SFB over the last forty years have identified several factors that have historically imparted resistance to the adverse effects of high nutrient loads: high turbidity, strong tidal mixing, and abundant filter-feeding clam populations" … (Senn et al., 2014).

[71] Even with the significant decrease in suspended sediment concentration that has been documented in recent decades, phytoplankton growth in San Francisco Bay remains strongly limited by the amount of light penetration (Senn et al., 2014).

From the 1850s until the late 1990s, suspended sediment concentration and turbidity in San Pablo Bay were artificially and substantially elevated in response to the delivery and subsequent erosion of a massive slug of sediment that was the product of hydraulic mining in the Sierra Nevada (Gilbert, 1917). The peak of hydraulic mining-related sediment delivery continued from the 1850s through the 1890s, when sediment storage in San Pablo Bay increased by an average of 8,000,000 cubic yards per year (Jaffe et al., 1998). Following the prohibition of hydraulic mining and efforts to stabilize and contain mining deposits in debris basins (Gilbert, 1917, pp. 11-13, and pp. 64-67), sediment deposition[72] in San Pablo Bay then declined in the 1890s through the early 1950s to about 2,000,000 cubic yards per year (Jaffe et al., 1998). Beginning in the early 1950s, shortly after the construction of several major reservoirs in the Sacramento-San Joaquin watershed, sediment supply to the Bay was substantially reduced (below the natural background value), and San Pablo Bay switched from being depositional to erosional (Jaffe et al., 1998). By 1999, it appears the supply of easily erodible sediment on the bottom of San Pablo Bay was ultimately exhausted (Shoellhamer, 2009, p. 63).

Prior to the influx of the huge slug of hydraulic-mining sediment, under natural conditions, San Pablo Bay and other parts of San Francisco Bay were much deeper (Gilbert, 1917, pp. 32-37). The erodible pool of sediment at the bottom of San Pablo Bay was much smaller, and water clarity was greater. Fundamental, large-scale changes in sediment supply from the Sacramento-San Joaquin watershed controlled both the creation and then the depletion of the erodible pool of sediment in San Pablo Bay[73]. Now that the erodible pool of sediment has been exhausted, San Pablo Bay has returned to more natural conditions with regard to suspended sediment concentration and water clarity.

Although compliance with the General Permit would reduce land-use related sediment loads from vineyard properties by as much as 50 percent, even after this and all of the other actions called for in both TMDLs have been implemented, sediment supply from the Napa River and Sonoma Creek **still would remain at approximately 125 percent of natural background, as needed to restore properly functioning substrate conditions for native fishes in freshwater reaches of the Napa River, Sonoma Creek, and their tributaries**. Sediment delivery from natural processes also will remain highly variable, and will be controlled primarily by the frequency of wet and dry periods of years, and also natural disturbance events.

Restoring properly functioning conditions with regard to sediment supply and substrate conditions is not at cross-purposes with protecting water quality in San Pablo Bay. Nutrient loading to San Pablo Bay is substantially elevated, and this is the primary driver for potential depletion of dissolved oxygen (not the return to natural rates of sediment discharge from the Napa River and Sonoma Creek to San Pablo Bay). To address this potential problem and maintain suitable conditions with regard to dissolved oxygen concentrations in all types of aquatic habitats in San Pablo Bay and elsewhere with the San Francisco Bay, the Water Board is engaged in efforts to update its water quality objectives for dissolved oxygen, and also to develop nutrient numeric endpoints (indicators of properly functioning conditions with regard to nutrients) and an implementation plan to achieve, as needed, the nutrient endpoints and dissolved oxygen objectives (Water Board, 2015).

[72] By definition, in order for sediment deposition to occur sediment supply must exceed transport capacity.

[73] Furthermore, we note that the erodible pool of sediment was exhausted while at the same time the inferred sediment loads from the Napa River and Sonoma Creek to San Pablo Bay were about 200 percent of the Natural background (Water Board, 2009a, and Water Board, 2008a). Absent another severe watershed disturbance, it is unlikely that the erodible pool of sediment will reform, and hence suspended sediment concentrations will remain lower than they were during the historical period (Shoellhamer, 2009).

Considering all of the above, the EIR finds that ***compliance with the General Permit will have a less than significant impact on water clarity and potential phytoplankton growth***.

Potential Impacts of Reduced Sediment Supply on Maintenance and Restoration of Tidal Wetlands along San Pablo Bay

Although sediment supply is an important variable with regard to maintaining and/or forming tidal marshes, whether sediment deposition occurs reflects a balance between local transport capacity and supply. Where mudflats are shielded from the erosive forces of waves and currents, sediment deposition can be relatively rapid and tidal marsh plains will begin to form and expand (Gunnell et al., 2013). Monitoring of recently-breached salt ponds located near the mouth of the Napa River documents that, under present-day conditions, sediment deposition rates are high throughout the ponds, very high in sheltered areas, and that tidal marshes are expected to become re-established at these large restoration sites (Brand et al., 2012). Similarly, a recent study analyzing changes in the position of the shoreline along San Pablo Bay documented that, over the past two decades, tidal marshes either maintained their positon or have expanded into the Bay, and that the greatest rates of expansion have occurred at stream mouth deltas[74] including along Sonoma Creek and the Napa River, and also along the Petaluma River, where unit sediment discharge rate ≤ 50 percent of the Napa River and/or Sonoma Creek (Beagle et al., 2015).

Under current conditions, the Napa River and Sonoma Creek are discharging the highest and second highest yields (both in terms of total yield and per unit watershed area) of any of the major tributaries that drain directly into San Francisco Bay (McKee et al., 2013, Table 3). Following attainment of both TMDLs, which establish sediment loads at 125 percent of natural background, the Napa River and Sonoma Creek still will have the highest and second highest sediment yields (in terms of total and/or per unit watershed area) of any of the major tributaries draining directly into San Francisco Bay.

As described in Water Board (2009a) and Water Board (2008a), the sediment TMDLs for the Napa River and Sonoma Creek are expressed as a percentage of the natural background rate in consideration of:

a) the Mediterranean climate and active tectonic setting, which result in natural sediment loads being highly variable, and the native stream biota being adapted large infrequent sediment pulses associated with natural disturbances (e.g., large storms, wildfires, major earthquakes); and

b) the fact that native stream biota are not adapted to chronic increases in fine sediment loads that are associated with land-use activities. Under the natural sediment regime, fine sediment delivery to streams would be low in most years, and the amount of fine sediment stored in gravel-bedded channels would be rapidly reduced following a large disturbance event, back to levels more favorable for spawning and rearing.

The Water Board expressed the TMDLs as 125 percent of natural background to emulate the natural pattern and magnitude of sediment discharge that native fishes and aquatic wildlife have adapted to. Therefore, although land-use related sediment discharges would be reduced by about 50 percent as a result of TMDL implementation in the Napa River (as compared to the 1994-to-2003 baseline period), sediment delivery from natural processes will remain highly variable and to be controlled primarily by the frequency of wet and dry periods of years, and also natural disturbance events.

[74] The study also concludes stream deltas and their connectivity to adjacent tidal marshes may be one of the most important factors influencing tidal marsh persistence and/or restoration feasibility (Beagle et al., 2015).

Although there is considerable uncertainty regarding the effects of climate change on future sediment supply in the California Coast Range, climate change models project that average annual precipitation in California will increase by about 10 percent, the frequency of atmospheric-river storm events that are associated with mega-floods also will increase, and that the largest atmospheric-river storms will be bigger than anything we have experienced during the historical period (Dettinger and Ingram, 2013). A wetter climate and larger and more frequent floods would be expected to increase the natural sediment supply rate, as compared to the historical period.

Also, large sediment pulses have occurred repeatedly during the historical period in response to large atmospheric-river storms including the well documented January 1982 storm that caused extensive landsliding throughout the San Francisco Bay Area, and significant sediment deposition in tidal marshes along Tomales Bay (Ellen and Wieczorek, 1988).

In summary, tidal marshes along San Pablo Bay have formed and been maintained under a highly variable sediment supply. Under current conditions, tidal marshes along San Pablo Bay are maintaining their positions or expanding, and diked former wetlands recently reconnected to tidal exchange are experiencing healthy rates of sediment deposition and are expected to be restored to tidal wetlands. The TMDLs maintain sediment supply above the natural background rate, which will vary substantially in future years based on factors unrelated to the General Permit. Climate change models project an increase in average annual precipitation, and in the frequency and magnitude of mega-floods (Dettinger and Ingram, 2013), which both are expected to increase sediment supply as compared to the historical period.

Therefore, we conclude that ***sediment control measures taken to comply with the General Permit, considered together with all other TMDL implementation actions, would result in a less than significant impact on maintenance and restoration of tidal marshes in San Pablo Bay***.

Impact 8.6 Actions taken to comply with the General Permit would not cause the capacity of a stormwater drainage system to be exceeded.

The CEQA Guidelines include “create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems” as a potential impact that must be considered. Storm drainage systems, or storm sewers, drain roads throughout the project area and also urban areas. Most development projects increase the amount of impervious surfaces, and therefore, can cause significant increases in storm runoff peak and/or volume that in some cases could exceed the capacity of a pre-existing municipal storm sewer. However, as presented in discussion of Impact 8.3, the effect on storm runoff of actions taken to comply with the General Permit at any individual vineyard property, at worst, would be neutral, and at most vineyard properties would be beneficial – storm runoff is expected to be attenuated. Dischargers are expected to implement BMPs that will control runoff and increase percolation. At the scale of the project area, the overall effect of compliance actions on storm runoff would be a beneficial and substantial attenuation of storm runoff peak. Therefore, the EIR concludes that ***compliance actions would not cause additional runoff water which could exceed the capacity of a stormwater drainage system***.

Impact 8.7 Actions taken to comply with the General Permit would result in substantial beneficial reductions in the discharge of polluted runoff and enhancement of water quality.

The project establishes General Waste Discharge Requirements for vineyard properties to attain and/or maintain water quality standards. As described in the discussion of Impact 8.4a, road sediment discharge, and land-use related channel erosion, gullying, and landsliding will all be reduced substantially (on average by 50 percent) within the vineyard properties enrolled in the permit. We estimate that 90 percent of planted vineyard acreage and about 70 percent of the total vineyard property acreage would be enrolled in the permit or otherwise meet sediment and storm runoff discharge performance standards. This represents a substantial contribution toward achievement of the load reductions called for in the sediment TMDLs. ***The effect of the project on attainment of water quality will be beneficial.***

Impact 8.8 Actions taken to comply with the General Permit would not affect placement of housing in flood hazard areas.

The General Permit requires actions to control sediment discharges and storm runoff increases from farms and roads, and also to control pesticide and nutrient discharges from farms (See Section 1.0, Introduction). It does not affect placement or location of housing in any way. ***Actions taken to comply with the General Permit would have no impact on placement of housing in a flood hazard area.***

Impact 8.9 Actions taken to comply with the General Permit would not impede or redirect flood flows.

Two types of BMPs that may be employed to comply with the General Permit involve placement of fill in channels: a) storm-proofing road crossing over channels (that could occur when decommissioning a road segment and/or constructing a new storm-proofed road segment); and b) soil bioengineering and/or biotechnical techniques to control erosion in gullies and/or stream channels. Storm-proofing includes upgrading the road crossing to convey the 100-year peak flow as well as the inferred sediment and large woody debris loads. Therefore, where such undersized or failing culverts are located in flood hazard areas, the effect of actions taken to comply with the General Permit would be beneficial (to reduce flooding). Soil bioengineering and/or biotechnical techniques would only be installed or constructed in channels or gullies located on hillslope vineyard properties, none of which overlap with defined flood hazard areas. Therefore, ***the project would not impede or redirect flood flows in a flood hazard area.***

Impact 8.10 Actions taken to comply with the General Permit would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

In order to comply with the General Permit, it is possible that detention basins (i.e., small dams) would be constructed at some hillslope vineyard properties in order to attain the performance standards for storm runoff. Any detention basin with a height ≥ 25 feet and/or a storage capacity ≥ 50 ac-ft, would be subject to permit and inspection programs administered by the California Department of Water Resources, Division of Safety of Dams, developed “to prevent (dam) failure, to safeguard human life, and to protect property from damage” (CA Department of Water Resources, Statutes and Regulations Pertaining to Dams and Reservoirs, No Date).

The Division of Safety of Dams has several programs to ensure that jurisdictional dams (height ≥ 25 feet and/or storage ≥ 50 ac-ft) are safe. Division engineers and geologists review dam site conditions, plans and specifications, and dam construction is contingent upon agency approval. During construction, division staff conducts site visits to confirm that the work is consistent with approved plans and specifications. Following construction, dams are inspected annually to confirm that the dam is safe.

In addition to state review and approval of jurisdictional dams, local government reviews and approvals also are required for smaller dams in Sonoma County and Napa County. Sonoma County requires that plans for a detention basin be prepared by a licensed civil engineer, and that the California Division of Safety of Dams "Guidelines for Small Dams" (Division of Safety of Dams, 1993) be followed in design of such structures, in addition to County requirements for minimum freeboard and compaction of earthen fill (Sonoma County Grading, Drainage, & Vineyard & Orchard Site Development Ordinance, Section 11.16.030). In Napa County, to construct a detention basin, a grading permit would be required from the Engineering Services Division, plans would have to be stamped by a licensed civil engineer and soil engineering and geology reports also would be required.

Considering existing state and local regulations, **actions taken to comply with the General Permit**, including at some hillslope vineyard properties the construction of detention basins **would not expose people or structures to risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam**.

Impact 8.11 Actions taken to comply with the General Permit would not expose people or structures to risk of loss, injury, or death by inundation from a seiche, tsunami, or mudflow

Actions taken to comply with the General permit would not affect the location of people or structures as related to risk of loss, injury, or death involving inundation from a seiche, tsunami, or mudflow. ***The project would not cause an impact***.

References

Beagle, J. and M. Salmon. (2015). Marsh expansion and retreat in San Pablo Bay. Report prepared by the San Francisco Estuary Institute-Aquatic Science Center, SFEI-ASC Publication # 751, June 2015. SFEI-ASC: Richmond, CA.

Brand, L. A., L.M. Smith, J.Y. Takekawa, N.D. Athearn, K. Taylor, G.G. Shellenbarger, D.H. Shoellhamer, and R. Spenst. (2012). Trajectory of early marsh restoration: elevation, sedimentation, and colonization of breached salt ponds in northern San Francisco Bay. Ecological Engineering 42 (2012): 19-29.

Brown, W.M. and J.R. Ritter. (1971). "Sediment transport and turbidity in the Eel River basin, California." US Geological Survey Water Supply Paper 1986: Washington, D.C.

California Court of Appeal. (2014). Court Decision in the case of the Living Rivers Council vs. State Water Resources Control Board, A137082, Alameda County Super. Ct. No. RG11560171

California State Coastal Conservancy. (2015). The Baylands and Climate Change. What We Can Do. Baylands Ecosystem Habitat Goals Update 2105. State Coastal Conservancy: Oakland, CA. p. 141.

Dawson, A. and R. Grossinger. (2002). Sonoma Valley Historical Ecology Project, Phase I Final Report. Sonoma Ecology Center: Eldridge, CA.

Dettinger, M.D. and B.L. Ingram. (2013). The Coming Megafloods. Scientific American, January 2013.

Dietrich, W.E. et al. (2004). The use of airborne laser swath mapping data in watershed analysis to guide restoration priorities: the Napa River watershed study. EOS, Transactions, Fall Meeting 2004, Abstract 85(47).

Division of Safety of Dams, 1993. Guidelines for the construction of small embankment dams. California Department of Water Resources, Division of Safety of Dams.

Ellen, S.D. and G.F. Wieczorek. (1988). Landslides, floods, and marine effects of the storm of January 3-5, 1982 in the San Francisco Bay region. US Geological Survey Professional Paper 1434.

Emig, J. and M. Rugg, (2000). Personal communication from John Emig and Mike Rugg, Senior Fisheries Biologists with CDFG, Yountville, Calif. to Mike Napolitano, RWQCB, Oakland, Calif. July 2000.

ESA Associates et al. (2012). Sonoma Valley Stormwater Management and Groundwater Recharge Scoping Study, Screening Evaluation and Prioritization Memorandum.

Farrar. C.D, L.F. Metzger, T. Nishikawa, K.M. Koczot, and E.G. Reichard. (2006). Geohydrological characterization, water chemistry, and groundwater flow simulation model of the Sonoma Valley area, Sonoma County, California. US Geological Survey, Scientific Investigations Report, 2006-5092.

Gilbert, G.K. (1917). Hydraulic-mining debris in the Sierra Nevada. US Geological Survey Professional Paper 105.

Grossinger, R.. (2012). Napa Valley historical ecology atlas, exploring a hidden landscape of transformation and resilience. UC Press: Berkeley, CA. pp. 52-53, pp. 74-75, and pp. 78-79.

Gunnell, J.R., and A.B. Rodriguez, and B. A. McKee. (2013). How a marsh is built from the bottom up. Geology, doi: 10.1130/G34582.1.

Harden, D.R. (2004). California Geology. Second Edition. Pearson Prentice Hall: Upper Saddle River, NJ. Pp. 280-283

ICF International. (2012). Napa County Climate Action Plan. Prepared for Napa County Department of Conservation, Development, and Planning.

Jaffe, B.E., R.E. Smith, and L. Zink Torresan. (1998). Sedimentation and bathymetric change in San Pablo Bay: 1856-1983. US Geological Survey Open-File Report 98-759.

Kelsey, H.M. (1980). "A sediment budget and an analysis of geomorphic process in the Van Duzen River basin, coastal California, 1941–1975: Summary." *Geological Society of America Bulletin*, Part 1, Vol. 91: 190–195.

Lehre, A.K. (1982). "Sediment budget for a small Coast Range drainage basin in north-central, California." In *Sediment budgets and routing in forested drainage basins*. USDA Forest Service General Technical Report, PNW–141, pp. 67-77.

Leidy, R.A. (2007). Ecology, Assemblage Structure, and Status of Fishes in Streams Tributary to the San Francisco Estuary, California.

Luhdorff and Scalmanini Consulting Engineers. (2011). Napa Valley Groundwater Conditions and Groundwater Monitoring Recommendations. Final Report prepared for Napa County Department of Public Works.

Luhdorff and Scalmanini Consulting Engineers. (2013). Updated Hydrogeologic Conceptualization and Characterization of Conditions. Final Report prepared for Napa County.

Manhard Consulting. (2011). Final hydrologic and Hydraulic report, Hopper and Hinman Creeks, Phase II alternatives analysis. Prepare for the Town of Yountville.

Marin Resource Conservation District. (2007). Groundwork, a Handbook for Small Scale Erosion Control in Coastal California. Second Edition. Marin County RCD: Point Reyes Station, CA.

McKee, L.M., M. Lewicki, D.H. Shoellhamer, and N.K. Ganju. (2013). Comparison of sediment supply to San Francisco Bay from watersheds draining the Bay Area and the Central Valley of California. Marine Geology 345 (2013): 47-62.

Napa County Flood Control District. (2015). Construction Schedule for the Napa River/Napa Creek Flood Protection Protect, as downloaded on 30 November 2015 at http://www.countyofnapa.org/Pages/DepartmentContent.aspx?id=4294968278

Napolitano, M.B, 2008. Unpublished memo to file, Vineyard design/management and relationships to on-site surface erosion rates and off-site erosion via concentrated runoff.

NOAA Online Weather Data. (2015). Monthly Climate Norms for Napa State Hospital, 1981-2010, as downloaded on 30 November 2015 at http://w2.weather.gov/climate/xmacis.php?wfo=mtr

NOAA Atmospheric River Information Page. (2015). As downloaded on 30 November 2015 at

http://www.esrl.noaa.gov/psd/atmrivers/.

PMC. (2007). Draft EIR for the Napa County General Plan, Volume I. Prepared for Napa County Department of Conservation, Development, and Planning: Napa, CA.

Poirier-Locke, J. (2002). Vineyards in the watershed, sustainable winegrowing in Napa County. Napa Sustainable Winegrowing Group: Napa, CA.

Ralph, F.M, T. Coleman, P.J Neiman, R.J. Zamora, and M.D. Dettinger. (2013). Observed impacts of duration and seasonality of atmospheric-river landfalls on soil moisture and runoff in coastal northern California. American Meteorological Society, State of the Science of Precipitation, Special Collection, DOI:10.1175/JHM-D-12-076.1

Ralph, F.M., P.J. Neiman, G.A. Wick, and S.I. Gutman, 2006. Flooding on California's Russian River: Role of Atmospheric River Events. Geophysical Research Letter (33), L13801, doi: 10.1029/2006GL026689, 2006.

Rantz, S.E. (1971). Mean annual precipitation depth-duration frequency data for the San Francisco Bay Region, California. US Geological Survey, Basic Data Contribution, 32.

Senn. D.B., and E. Novick. (2014). Scientific foundation for the San Francisco Bay nutrient management strategy. Draft final, October 2014. Report prepare for the San Francisco Bay Regional Monitoring Program

Shoellhamer, D.H. (2009). Suspended sediment in the bay: past a tipping point. Pulse of the Estuary 2009, Bay Sediments: Past a Tipping Point. San Francisco Estuary Institute, Contribution 583: Richmond, CA, pp. 56-65.

Sonoma County. (2006). Sonoma County General Plan 2020, General Plan Update, Draft Environmental Impact Report. County of Sonoma, Permit and Resource Management Department: Sonoma, CA.

Sonoma County Agricultural Commissioner, 2013. Best management practices for agricultural erosion and sediment control. County of Sonoma: Santa Rosa, CA.

Sonoma County Water Agency. (2011). Sonoma Valley Stormwater Management and Groundwater Recharge Scoping Study, Issues Assessment. Unpublished memorandum. Sonoma County Water Agency: Santa Rosa, CA.

Sonoma Ecology Center et al. (2004). Sonoma County Watershed Limiting Factors Analysis. Prepared by the Sonoma Ecology Center with the assistance of Stillwater Sciences and the UC Berkeley Department of Earth and Planetary Sciences. Sonoma Ecology Center: Eldridge, CA.

Stillwater Sciences and W. Dietrich. (2002). Napa River Basin Limiting Factors Analysis, Final Technical Report.

Swinchatt, J. and D.G. Howell. (2004). The Winemaker's Dance, Exploring Terroir in the Napa Valley. University of California Press: Berkeley, CA. pp. 2, 8, 32, 80-81.

Town of Yountville, 2014. Town of Yountville, Capital Improvement Projects, 2015-2019.

USEPA. (2015). Summary of the Clean Water Act, as downloaded on 30 November 2015 at http://www2.epa.gov/laws-regulations/summary-clean-water-act

U.S. Fish and Wildlife Service. (1968). Analysis of fish habitat of the Napa River and tributaries, Napa County, California with emphasis given to steelhead trout production. USFWS: Sacramento, California

Water Board. (2008a). Sonoma Creek Watershed Sediment TMDL and Habitat Enhancement Plan, Staff Report.

Water Board. (2008b). Sonoma Creek Watershed Sediment TMDL and Habitat Enhancement Plan, Basin Plan amendment.

Water Board. (2009a). Napa River Sediment TMDL and Habitat Enhancement Plan, Staff Report.

Water Board. (2009b). Napa River Sediment TMDL and Habitat Enhancement Plan, Basin Plan amendment.

Water Board. (2015). San Francisco Bay Basin, Water Quality Control Plan, Triennial Review 2015.

Water Education Foundation, 2015. The 2014 Sustainable Groundwater Management Act: A handbook to understanding and implementing the law.

Weaver, W., E. Weppner, D. Hagans. (2014). Handbook of Forest, Ranch, and Rural Roads, A Guide for Planning, Designing, Constructing, Reconstructing, Upgrading, Maintaining, and Closing Wildland Roads. Mendocino RCD: Ukiah, CA. http://mcrcd.org/wp-content/uploads/Handbook_for_Forest_Ranch&Rural_Roads.pdf

West Yost & Associates. (2005). Technical Memorandum, No. 5, 2050 Napa Valley Water Resources Study Project Unincorporated Area water Supplies. Prepared for Napa County Department of Public Works. West Yost & Associates: Pleasanton, CA.

9. CUMULATIVE IMPACTS

A cumulative impact refers to the combined effect of "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines § 15355). As defined by the State of California, cumulative impacts reflect "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (CEQA Guidelines § 15355(b)).

Lead agencies may use a "list" approach to identify related projects, or may base the identification of cumulative impacts on a summary of projections in an adopted general plan or related planning document (CEQA Guidelines § 15130 (b)), also known as the "projection" approach. This document utilizes both approaches. The list approach was utilized by developing a list of past, present and reasonably foreseeable related projects, as shown in **Table 9-1**. In addition, the Napa County General Plan, Draft Environmental Impact Report (Napa County, 2007), the Napa County Baseline Data Report (Jones & Stokes, 2005), and the Sonoma County General Plan 2020, Draft Environmental Impact Report (Sonoma County, 2006) were used in considering potential cumulative impacts and the Proposed Project's contribution to any cumulative significant impacts.

Table 9-1: Summary of Related Projects

Related Activity	Scope of Activity	Activities that Could Affect Resources Similar to the Proposed Project
Napa River Rutherford Reach Restoration	4.5 miles of Napa River; construction completed in fall 2015; annual maintenance actions ongoing. This project over the long-term is expected to significantly enhance stream-riparian habitat conditions in the Rutherford Reach of the Napa River.	Setback of channel banks, removal of invasive species, planting native riparian plants, construction of setback levees, and creation of alcoves, side channels, and forced pool-riffle habitats; annual channel maintenance (e.g., per riparian plantings, invasive species, LWD management, trash removal, and maintenance of forced pool-riffle structures)
Napa River Oakville to Oak Knoll Reach Restoration	9 miles of Napa River, construction starting in summer 2015, and expected to continue through the fall of 2020. This project over the long-term is expected to significantly enhance stream-riparian habitat conditions in the Oakville to Oak Knoll Reach of the Napa River.	Active restoration of 4.8 miles of this reach through channel widening, floodplain restoration, biotechnical streambank stabilization, removal of invasive species, planting native riparian species, and construction of side channels, alcoves, and forced pool-riffle habitats; also implementation of management plans to allow passive restoration of channel and riparian habitat complexity; ongoing annual maintenance projects (as described above for Rutherford). (Horizon Water and Environment, 2014)

Table 9-1: Summary of Related Projects (Cont.)

Related Activity	Scope of Activity	Activities that Could Affect Resources Similar to the Proposed Project
Napa River/Napa Creek Flood Protection Project	6 miles of the Napa River/Napa Creek; construction is complete except for a series of floodwalls and one pump station. Over the long-term, this project is expected to enhance stream-riparian and estuarine habitats.	Floodplain and riparian restoration along the Napa River and Napa Creek, construction of a bypass channel along the Napa River, construction of flood walls and pump stations in the City of Napa, and a modest amount of maintenance dredging.
Napa County Stream Maintenance Program	Flood control channels, urban stream channels and ditches, and other natural channels throughout the Napa River watershed. Flood control channels include reaches of lower Conn Creek, Salvador Channel, and lower Tulocay Creek. The Flood Control District also performs annual surveys and addresses flood conveyance problems along privately owned natural channel reaches along the Napa River near Calistoga and along the Napa River between York and Sulphur creeks, and also in the lower reaches of Sulphur, Dry, Redwood/Napa, Milliken, Sarco, and Tulocay creeks, and in Hopper Creek.	In the flood control channels, activities include vegetation thinning, bank stabilization, debris removal, and sediment removal, removal of invasive plants, and cultivation of native riparian species. In natural channel reaches that are privately owned, activities generally include: vegetation management; removal of debris, trash, and invasive plants; and consultations of channel erosion and/or bank stabilization projects. (Horizon Water and Environment, 2011)
Napa County Road Maintenance Program	Roadways throughout Napa County; ongoing	Culvert repair, bank repair and grading, among other activities.
Sonoma County Stream Maintenance Program in the Sonoma Creek watershed	Primarily vegetation and large woody debris management in modified or natural channels to maintain flood conveyance where SCWA maintains easement agreements including in a significant portion of Sonoma Creek upstream of City of Sonoma, and also downstream in modified reaches of Sonoma Creek, and lower reaches of Nathanson, Schell, Rodgers, and Fowler creeks.	Responding to landowner requests, SCWA may implement: selective retention and pruning of riparian trees; mowing or trimming of native understory species; removal of invasive species (e.g., Arundo); biotechnical bank stabilization (typically with hand tools); and/or large woody debris management (cutting branches off large fallen trees, repositioning LWD, cutting LWD into smaller pieces, or removing trees). (Horizon Water and Environment, 2009) (Sonoma County Water Agency, 2015)
Sonoma Valley Stormwater Management and Groundwater Recharge Plan	Nathanson/Fowler Creek stormwater detention project	These projects may include one or more off-channel detention basins, high flow diversion channel(s), and/or infiltration galleries to store and infiltrate 100-to-500 ac-ft of stormwater. Construction is projected for 2018. (Sonoma County Water Agency, 2014)

Table 9-1: Summary of Related Projects (Cont.)

Related Activity	Scope of Activity	Activities that Could Affect Resources Similar to the Proposed Project
Projected Future Vineyard Development Project	8,000 acres of additional vineyard development within the project area. Future vineyard developed is expected to significantly impact biological resources including special-status species (in Sonoma County) and sensitive natural communities (in Sonoma and Napa counties) (Sonoma County, 2006) (Napa County, 2007)	Based on vineyard development projections through 2020 in Sonoma, and through 2030 in Napa, contained in the environmental impact reports for recent updates to the Napa County and Sonoma County General Plans (Napa County, 2007; Sonoma County, 2006) and/or in the Napa County Climate Action Plan (ICF, 2012), we assume the same rates of vineyard development will occur in future years throughout the lifecycle of the permit. Considering the above, over the next 20 years, up to 6,000 acres of vineyards could be developed in the Napa River watershed, and up to 2,000 acres in the Sonoma Creek watershed. Most of these vineyards would be on hillslopes, and up to 500 acres of the projected vineyard development could involve conversion of forest and/or wetland habitats.
Projected Future Structural Development	Approximately 4300 residential units plus 325 acres of non-residential development built primarily in urban areas	Most of this development would be concentrated in existing urban areas or adjacent unincorporated areas in the Napa and/or Sonoma valleys.
Other Sediment TMDL implementation actions	Development and implementation of Water Board permits for discharges from grazing areas, parks and open spaces, rural residential areas, and publically owned roads.	The Water Board has already adopted a permit for grazing areas throughout the project area. Water Board permits to regulate sediment discharges (primarily from roads) also are anticipated for parks and open space, public roads, and rural residential properties.

Detailed analysis of a project's contribution to cumulative impacts is required when (1) a cumulative impact is expected to be significant, and (2) the project's contribution to the cumulative impact is expected to be cumulatively considerable, or significant in the context of the overall (cumulative) level of effect. **Table 9-2** summarizes cumulatively significant impacts and identifies the Proposed Project's contribution. Additional analysis is provided below the table for those impacts that the Proposed Project contributes to significant impacts.

Table 9-2: Summary of Cumulative Impacts and the Proposed Project's Contribution

Resource Topic	Cumulatively Significant Impacts	Proposed Project's Contribution
Aesthetics	None identified. General Plan's for both counties are strongly protective of aesthetic resources.	No analysis required.
Agricultural Resources	None identified. The General Plan's for both counties designate agriculture as the primary land use. Growth is strictly regulated by local land use authorities to preserve and protect agricultural lands including by concentration of growth within existing boundaries of incorporated towns and cities.	No analysis required.
Air Quality	Ozone and fine particulate matter ($PM_{2.5}$) are the primary air pollutants of concern in the San Francisco Bay Area. Ozone typically is a concern during the summer and is generated primarily by vehicle use. $PM_{2.5}$ is a problem occasionally during the winter and is related primarily to wood smoke from fireplaces. Sonoma County has some of the lowest ozone and $PM_{2.5}$ levels in the Bay Area, and standards for these constituents are rarely exceeded. In Napa County, health standards for ozone also are rarely exceeded and only occasionally exceeded during the wintertime for $PM_{2.5.}$ (BAAQMD, 2016a and 2016b)	Actions taken to comply with the General Permit, primarily related to the use of heavy equipment that would be used to reshape existing unpaved roads, as needed to reduce storm runoff and sediment delivery from roads, would contribute to fine particulate matter and ozone precursor emissions. The project would contribute to an increase in the emissions of ozone precursors and/or particulate matter, which already occasionally violate air quality standards. The project's contribution toward any violation therefore would be considered cumulatively considerable. Further analysis is provided below.

Table 9-2: Summary of Cumulative Impacts and the Proposed Project's Contribution (cont.)

Resource Topic	Cumulatively Significant Impacts	Proposed Project's Contribution
Biological Resources	Past and present land and/or water resources development have significantly impacted native steelhead and salmon populations and their habitat in the Napa River and the Sonoma Creek watersheds, (USFWS, 1968; Emig and Rugg, 2000; Leidy, 2007). Development and land use changes in both watersheds could further decrease water quality and quantity, introduce invasive species, and/or impede migration. These impacts would be considered cumulatively significant. Over the past 150 years, various land use practices in the Napa River and Sonoma Creek watersheds have resulted in a significant reduction in the quantity and quality of riparian habitats, freshwater and estuarine wetlands, oak woodlands, native grasslands, and other sensitive natural communities (Grossinger, 2012, pp. 42, 58-59, 78-79).	Actions taken to comply with the General Permit are expected to significantly enhance spawning and rearing habitat for steelhead and salmon in the Napa River and Sonoma Creek watersheds, and have a neutral or beneficial impact on riparian habitat. Within the project area, as many as 75 acres of previously undeveloped upland habitats could be directly impacted by detention basins that could be constructed to comply with the vineyard performance standards for storm runoff. An unknown fraction of these 75 acres may be defined as sensitive natural communities including a variety of forest, woodland, scrubland, and native grassland habitats, and/or special-status species or their habitats that occur at these sites. Project-related actions that contribute to additional reduction in the quantity and quality of oak woodlands, native grasslands, and other sensitive natural communities (located in upland areas) would be considered cumulatively considerable. Further analysis is provided below.
Cultural Resources	Over the past 150 years, land uses and development within the Napa River and Sonoma Creek watersheds have caused substantial adverse changes to the significance of historical, paleontological, and/or archeological resources. Projected future development (vineyards and/or structural development projects), flood control, stormwater detention and/or groundwater recharge, and/or channel restoration projects could lead to cumulative loss of significant historical, archeological, and/or paleontological resources.	Where compliance with the General Permit would involve construction of a detention basin and/or constructing a new property access road in previously undeveloped locations, these compliance actions have the potential to significantly impact archeological resources, and considering other past, present, and future projects, these impacts would rise to the cumulatively considerable level. Further discussion is provided below.
Geology and Soils	None identified	No analysis required.

Table 9-2: Summary of Cumulative Impacts and the Proposed Project's Contribution (cont.)

Resource Topic	Cumulatively Significant Impacts	Proposed Project's Contribution
Greenhouse Gas Emissions	Human-caused emissions of greenhouse gases (GHG) are contributing to global warming. This impact is considered cumulatively considerable.	Construction related GHG emissions, for the whole of the project but primarily related to use heavy-equipment to reshape existing unpaved roads, as needed to attain pollutant discharge performance standards, may involve earthmoving along as many as 170 miles of roads throughout the project area over a 10-to-20 year period of implementation, for an average of several miles per year, which is estimated to produce annual GHG emissions during the implementation period that would significantly exceed the GHG significance threshold of 1100 metric tons per year. Further discussion is provided below.
Hazards and Hazardous Materials	None identified	No analysis required.
Hydrology and Water Quality	Past and present development activities have substantially increased erosion and sedimentation, and included direct alterations of stream channels and floodplains throughout the project area resulting in water quality impairment related to sedimentation in both the Napa River and Sonoma Creek watersheds, and flooding problems in the Napa and Sonoma valleys. Although groundwater levels appear stable overall within the Napa Valley Aquifer, watershed development has contributed to a significant decline locally in the Milliken-Sarco-Tulocay area. In the Sonoma Valley aquifer, groundwater storage declined by about 10 percent between 1975 and 2000.	Actions taken to comply with the General Permit are expected to significantly reduce erosion and sedimentation, and also significantly reduce peak runoff, contributing to progress toward the attainment of water quality objectives, and also to a modest reduction in flood risk. The effect of actions taken to comply with the General Permit with regard to groundwater recharge would beneficial and significant. No further analysis is required.
Land Use and Planning	None identified	No analysis required.
Mineral Resources	None identified	No analysis required.
Noise	None identified	No analysis required.
Population and Housing	None identified	No analysis required.
Public Services	None identified	No analysis required.

Table 9-2: Summary of Cumulative Impacts and the Proposed Project's Contribution (cont.)

Resource Topic	Cumulatively Significant Impacts	Proposed Project's Contribution
Recreation	None identified	No analysis required.
Transportation and Traffic	None identified	No analysis required.
Utilities and Service Systems	None identified	No analysis required.

The following sections provide a detailed analysis of the Proposed Project's contribution to existing significant cumulative impacts. As identified in Table 9-2, the following resource issues are discussed: air quality, biological resources, cultural resources, and global climate change.

Air Quality: Emissions of Criteria Air Pollutants —Significant and Unavoidable

Principal air quality concerns for BMP construction and maintenance relate to (1) generation of fugitive dust during earthmoving and (2) exhaust emissions from construction equipment.

As discussed in the Air Quality Impact Analysis (Section 5.4), given implementation of construction dust control Mitigation Measures AQ-1 through AQ-4, which are consistent with the BAAQMD's guidance (Bay Area Air Quality Management District, 1999), construction-related emissions of criteria pollutants and air quality impacts on sensitive receptors near work sites would be less than significant at the project level for all criteria pollutants. The BAAQMD thresholds of significance are designed also to serve as cumulative thresholds of significance.

Although impacts to air quality can be reduced to a less than significant level with the implementation of the mitigation measures described above, the Water Board would not have oversight of the implementation of proposed mitigation measures. Because project-level mitigation lies with the local land use authority, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce significant impacts associated with actions taken to comply with the General Permit. Therefore, the EIR takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that impacts to air quality from actions taken to comply with the General Permit may be significant and unavoidable. To reduce potential air quality impacts, the Water Board will work with approved Third-Party Programs and/or Qualified Professionals to inform Dischargers about BAAQMD mitigation measures that can be implemented to reduce air emissions associated with construction activities to levels below significance thresholds.

In summary, **air quality impacts resulting from actions taken to comply with the General Permit may be cumulatively considerable**.

Biological Resources: Impacts to Upland Associated Special-Status Species and Sensitive Natural Communities –Significant and Unavoidable

Special-status fish and aquatic wildlife species, streams, and riparian habitats – Historical and/or current land-use activities have caused or contributed to stream and riparian habitat simplification[75], substantial increases in the amount of fine sediment in streambeds, barriers to fish migration, stressful stream temperatures, and poor baseflow persistence, which together have interacted to substantially reduce salmon and steelhead populations, and also have impacted exceptionally diverse native fish assemblages in the Napa River and Sonoma Creek watersheds (Water Board, 2009a, and Water Board, 2008a).

Actions taken to comply with the General Permit, over the long-term, would substantially reduce fine sediment delivery to channels, attenuate storm runoff from vineyards and roads, and increase the extent of riparian vegetation, which would substantially enhance the quality of spawning and rearing habitat for salmon and steelhead, native resident fish species, and also the quality of stream and/or riparian habitats available for California freshwater shrimp, foothill yellow-legged frog, California red-legged frog, and western pond turtle (See Section 6.3.3, Discussion of Impact 6-1a and Impact 6-2).

The actual construction of BMP projects within vineyards, roads, and/or eroding channels and gullies at multiple locations throughout hundreds of vineyard properties could have short-term adverse impacts on streambeds, riparian habitat, fish, and wildlife. The mitigation measures included in the Draft EIR (Mitigation Measures BR-1 through BR-8) would be expected to reduce these short-term, construction-related impacts to a less than significant level. With these measures in place, **the overall contribution of the Proposed Project would be beneficial with regard to its effects on stream and/or riparian habitats and associated special-status species**.

Special-status bird species – Historical development of farms and urban areas in both watersheds has substantially reduced the extent, quality, and connectivity of tidal and freshwater wetlands, riparian habitats, old-growth redwood-Douglas fir forests, and Valley Oak savannas (see Grossinger, 2012; SEC, 2002; Grossinger et al., 2003). These and other sensitive natural communities, including several types of woodlands, chaparral, and native grasslands, provide essential habitats for several special-status bird species that occur throughout the project area.

In addition to historical impacts of habitat loss and degradation, future vineyard and/or urban development in the project area is projected to cause a significant reduction in the extent and connectivity of the habitats that remain (Sonoma County, 2006; Napa County, 2007).

[75] Habitat simplification has occurred as a result of channel incision. Channel incision reflects and integrates multiple historical and ongoing disturbances including: a) direct alterations to the Napa River, Sonoma Creek, alluvial reaches of tributaries (e.g., levee building, channel straightening, side channel filling, connecting naturally disconnected tributaries, removal of debris jams, ditching/draining floodplain wetlands, historical gravel mining, and dredging); b) in the Napa River watershed, construction of four large tributary dams between 1939 and 1959; and c) in both watersheds, land-cover changes that have increased peak flows (e.g., vineyards, logging of old-growth redwoods, intensive historical grazing, buildings, and roads) (Water Board, 2008a, p.23; Water Board, 2009a, p.46).

Although the General Permit does not authorize construction of new vineyards, as described in detail in Section 6.3.3, there are two types of potential impacts to special-status birds that could occur as the result of actions taken to comply with the General Permit at new vineyards:

1) Noise generated by heavy equipment used to construct BMPs in a few cases would have the potential to disrupt breeding and/or nesting by special-status bird species; and

2) Construction of detention basins, although this would occur at only a few vineyard properties, in some cases sites could overlap with nesting or other habitats for special status birds.

Where construction activities would overlap at least in part with wetlands, streams, and/or riparian areas, to reduce all potential impacts to nesting birds to a less than significant level, the Water Board, acting within its statutory authority to protect water quality and beneficial uses of water, would implement Mitigation Measure BR-1: to issue a Clean Water Act Section 401 Permit, conditioned to protect water quality and all beneficial uses (see Section 6.3.3 for additional details). Protection of special-status bird species that dwell within wetlands, waters, and/or riparian habitats is included within the definition of the wildlife habitat beneficial use of water.

Elsewhere, at BMP construction sites that do not overlap with wetlands, stream, or riparian habitats, as discussed in Section 6.3.3, Mitigation Measures BR-9, BR-10, and BR-11 could be implemented. These mitigations involve: a) restricting the construction period at sites located within ¼-mile of potential nesting sites so that construction does not overlap with nesting periods or conducting a protocol survey to confirm suitable nesting habitat is not occupied; and/or b) preparing a biological inventory, and if protected species or their habitats are present, to comply with applicable federal and state endangered species acts and regulations. Upon implementation Mitigation Measures BR-9, BR-10, and BR-11 significant impacts to special-status birds in upland areas would be reduced to a less than significant level. However the Water Board would not have oversight of the implementation of proposed mitigation measures because protection of wildlife habitat in upland areas is not included within the definition of the wildlife habitat beneficial use. Implementation of these mitigation measures therefore would fall within the jurisdiction of the local land use authority. Because project-level mitigation lies with the local land use authority, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented. Therefore, the EIR takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that actions taken to comply with the General Permit may cause significant and unavoidable impacts to special-status bird species in upland areas.

Considering the historical impacts of agricultural and urban development in both watersheds, and the projected impacts of future vineyard and urban development, together with the Proposed Project, **the potential impacts of the Proposed Project on special-status bird species may be cumulatively considerable**.

Other special-status species and sensitive natural communities in upland areas

As discussed immediately above, historical development for agriculture and urban areas has significantly reduced the extent, quality, and/or connectivity of sensitive natural communities that occur within upland areas including old growth forests, valley oak savannas, other oak woodlands, and native grasslands. Future vineyard and urban development is projected to significantly impact these and other sensitive natural communities that occur throughout the project area. A broad array of special-status plant species may occur within upland areas and/or several listed animal species including pallid bat, western red-eared bat, California red-legged frog, California tiger salamander, and Callippe silverspot butterfly (see Section 6.3.3 for additional information).

At the hillslope vineyard properties where detention basins would be constructed in order to comply with the General Permit, there is the potential to impact sensitive natural communities and/or special status species associated with some upland habitat types including several types of chapparal, native grasslands, and/or a variety of woodland types. Considering the entire 592 mi^2 project area, the EIR conservatively estimates that up to 78 acres of upland habitat under natural vegetation cover may be converted to detention basins, and an unknown fraction of which may overlap with areas defined as sensitive natural communities and/or that contain special status species and/or their habitats. As described above, given implementation of Mitigation Measure BR-11, these potential impacts would be reduced to a less than significant level. However, the Water Board would not have oversight of the implementation of proposed mitigation measures because impacts to wildlife species habitat in upland areas fall outside of the definition of the wildlife beneficial use, and/or the protection of water quality. Implementation of these mitigation measures therefore would fall within the jurisdiction of the local land use authority. Because project-level mitigation lies with the local land use authority, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented. Therefore, **the EIR conservatively finds that impacts of the Proposed Project on sensitive natural communities and/or special status species in uplands areas may be cumulatively considerable**.

Cultural Resources: Impacts to Archeological Resources and/or Human Remains – Significant and Unavoidable

Historical development of agriculture, roads, and urban areas throughout the project area has substantially impacted archeological resources throughout the project area.

Actions to comply with the General Permit could involve both minor and larger-scale grading and construction. Large scale construction would generally be limited to road relocation, detention basin/managed wetland construction, and culvert replacement. Management practices such as modification of road drainage and measures to control erosion from the planted area and at points of discharge would generally be small in scale, and would be limited to shallow excavation. In some cases, deeper excavation may be necessary to construct detention basins (BMP-10), and/or to remove a road crossing located along a problematic road segment that is decommissioned (BMP-19) and/or to construct a road crossing along a new storm proofed road segment (BMP-20). In some locations, such as near streams and at the base of hills (see Section 7.6.3), archaeological resources and/or human remains could be encountered. Recognized and accepted mitigation measures routinely required by regulatory agencies (Mitigation Measure 7.2) include to:

- Perform a cultural resources survey by a qualified archaeologist or cultural specialist that conforms to the U.S. Secretary of the Interior's Professional Qualifications Standards, as published in 36 Code of Federal Regulations;

- Contact the state Historic Preservation Officer and federal lead agencies as appropriate for coordination of Nation-to-Nation consultations with the Native American Tribes;

- Consult a qualified paleontological resources specialist to determine whether paleontological resources would likely be disturbed in a project area on the basis of the sedimentary context of the area and a records search for past paleontological finds in the area. The assessment may suggest areas of high or known potential for containing resources. If the assessment is inconclusive, a surface survey is recommended to determine the fossil potential and extend of the pertinent sedimentary units within the project site. If the site contains areas of high potential

for significant paleontological resources and avoidance is not possible, prepare a paleontological resources mitigation plan;

- Consult established archaeological and historical records and conduct a field survey of the project prior to construction. Survey records shall be filed with the appropriate archaeological or historical data centers;

- Consult with local Native American representatives as appropriate to obtain local knowledge of the project vicinity;

- Prepare site development and grading plans that avoid disturbance of known cultural sites and/or documented sensitive areas. Project plans shall include appropriate measures to protect sensitive resources;

- Retain a qualified archaeologist or Native American tribal representative to monitor site development activities, particularly grading and trenching. If artifacts are observed during construction, require that construction be halted until a qualified archaeologist has been consulted;

- Alert onsite workers to the possibility of encountering human remains during construction activities, and prepare appropriate procedures. It is usually required that all construction activities near the location of identified human skeletal remains are halted until proper consultation and mitigation is arranged.

Although impacts to cultural resources and archaeological resources and/or to human remains can be reduced to a less than significant level with the implementation of the mitigation measure described above, the Water Board would not have oversight of the implementation of proposed mitigation measures. Because project-level mitigation lies with the local land use authority, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented. Therefore, the EIR takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that significant environmental impacts to cultural resources and/or human remains resulting from disturbance such as grading and trenching to comply with the General Permit may be significant and unavoidable. Considering historical impacts to archeological resources and/or to human remains together with the Proposed Project, **the EIR conservatively finds that impacts may be cumulatively considerable and unavoidable**.

Greenhouse Gas Emissions: Significant and Unavoidable

Construction related GHG emissions for the whole of the project, which are primarily related to use heavy-equipment that would be used to reshape existing unpaved roads (to attain water quality discharge standards), may involve earthmoving on up to 200 miles of unpaved roads throughout the project area over a 10-to-20 year period of implementation, for an average of 10-to-20 miles of road per year, which is estimated to produce annual GHG emissions during the implementation period (associated with construction of BMPs) that would significantly exceed the GHG significance threshold of 1100 metric tons per year[76]. Implementation of the following types of mitigation measures (GHG-1) would reduce the amount of GHG emissions, and can reduce the impact to a less than significant level:

- Require Use of Newer Construction Equipment. Construction equipment with newer engine models is subject to stricter emissions standards, and would generate less GHG emissions.
- Require Use of Equipment Powered by Electricity. Some types of equipment can be powered by either diesel fuel, electricity, or a hybrid. Use of equipment powered by electricity or a hybrid would generally generate less GHG emissions.
- Require Use of Equipment Powered by Alternative Fuels. Some types of equipment can be powered by alternative fuels (i.e., not diesel fuel). Use of alternative fuels would generally generate less GHG emissions.

Although GHG-1 would reduce potential impact related to GHG emissions to less than significant levels, because project-level mitigation lies with the local land use authority, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented. Therefore, the EIR takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that significant environmental impacts to GHG emissions. Considering the effect of past and projected future development projects, the EIR conservatively concludes that **the impacts of the Proposed Project may be cumulatively considerable and are unavoidable**.

[76] The BAAQMD significance threshold was developed to apply to operational emissions generated by construction activities, and not to GHG emissions generated from construction of projects. For example, for a new shopping center, the “operational emissions” of greenhouse gases would relate to additional vehicle trips, energy demands, etc. associated with operation of the facility throughout its projected operational lifetime. Considering the nature of actions taken to comply with the General Permit, where significant construction activities may continue for a 10-to-20 year implementation period, the EIR conservatively applies the significance threshold for operational emissions of GHGs to these construction activities. We note however that once the roads have been reshaped and detention basins constructed (by far and away the largest earth moving activities that would occur to comply with the General Permit), long-term “operational emissions” associated with maintenance of BMPs are expected to fall below the BAAQMD threshold of significance. Also, GHG reductions that will occur as a result of decreases in tillage and increases in cover crops at vineyards, substantial reductions in soil erosion throughout vineyard properties, and increases in riparian vegetation are not accounted for in the analysis of the overall effect of the Proposed Project on GHG emissions.

References

Bay Area Air Quality Management District (BAAQMD). (1999). CEQA Guidelines – Assessing the Air Quality Impacts of Projects and Plans. San Francisco, CA.

Bay Area Air Quality Management District (BAAQMD). (2016a). About air Quality in your community: Sonoma County. BAAQMD website accessed on 4 March 2016 at http://www.baaqmd.gov/in-your-community/sonoma-county

Bay Area Air Quality Management District (BAAQMD). (2016b). About air Quality in your community: Napa County. BAAQMD website accessed on 4 March 2016 at http://www.baaqmd.gov/in-your-community/napa-county

Dawson, A., M. Solomon, A. Whipple, and R. Grossinger. (2008). An introduction to the historical ecology of the Sonoma Creek watershed. Sonoma Ecology Center: Eldridge, CA.

Emig, J. and M. Rugg. (2000). Personal communication from John Emig and Mike Rugg, Senior Fisheries Biologists with the California Department of Fish and Game, Yountville, CA to Mike Napolitano, Water Board, Oakland, CA.

Grossinger, R., C. Striplen, E. Brewster, and L. McKee. (2003). Ecological, Geomorphic, and Land Use History of the Sulphur Creek Watershed. San Francisco Estuary Institute: Richmond, CA.

Grossinger, R. (2012). Napa Valley historical ecology atlas, exploring a hidden landscape of transformation and resilience. UC Press: Berkeley, CA.

Horizon Water and Environment. (2009). Stream Maintenance Program, Draft Environmental Impact Report. Prepared for the Sonoma County Water Agency.

Horizon Water and Environment. (2011). Napa County Flood Control and Water Conservation District, Napa County Stream Maintenance Program, Initial Study/Mitigated Negative Declaration. Prepared for Napa County Department of Conservation, Development, and Planning.

Horizon Water and Environment. (2014). Napa River Restoration: Oakville to Oak Knoll. Initial Study/Mitigated Negative Declaration. Prepared for Napa County Department of Conservation, Development, and Planning.

ICF International. (2012). Napa County Climate Action Plan. Prepared for Napa County Department of Conservation, Development, and Planning.

Jones & Stokes Associates. (2005). Napa County Baseline Data Report, Chapter 4, Biological Resources. Prepared for Napa County Department of Conservation, Development, and Planning.

Leidy, R.A. (2007). Ecology, Assemblage Structure, and Status of Fishes in Streams Tributary to the San Francisco Estuary, California.

Napa County. (2007). Draft Environmental Impact Report for the Napa County General Plan. State Clearinghouse No. 2005102088. County of Napa, Department of Conservation, Development, and Planning.

Sonoma County. (2006). Draft Environmental Impact Report, Sonoma County General Plan 2020, General Plan Update. State Clearinghouse No. 2003012020

Sonoma Ecology. (2002). The Oral History Project: A report on the findings of the Sonoma Ecology Center's Oral History Project, focusing on Sonoma Creek and the historical ecology of Sonoma Valley. Sonoma Ecology Center: Eldridge, CA.

Sonoma County Water Agency. (2014). Sonoma Valley Groundwater Management Plan. Five Year Review and Update, Final Report.

Sonoma County Water Agency. (2015). Zones 2A and 3A, Natural Channels Maintenance Project, Initial Study/Mitigated Negative Declaration. Sonoma County Water Agency: Santa Rosa, CA.

USFWS. (1968). Analysis of the Fish Habitat in the Napa River and Tributaries, Napa County, CA, with Emphasis Given to Steelhead trout Production. USFWS Memo to File. USFWS: Sacramento, CA.

Water Board. (2008a). Sonoma Creek Watershed Sediment TMDL and Habitat Enhancement Plan, Staff Report.

Water Board. (2009a). Napa River Sediment TMDL and Habitat Enhancement Plan, Staff Report.

10. ALTERNATIVES ANALYSIS

10.1. Factors for Selecting Alternatives

CEQA Guidelines section 15126.6, subdivision (c) recommends that an EIR describe the rationale for selecting each of the alternatives. A reasonable range of alternatives is considered for this analysis. The following factors were considered in identifying a reasonable range of alternatives to the project:

- Does the alternative accomplish the fundamental, and all, or most of the secondary (other) project objectives?
- Is the alternative feasible from an economic, environmental, legal, social, and technological standpoint?
- Does the alternative avoid or lessen any significant negative environmental effects of the project?

As stated in Chapter 2, the fundamental objective of the General Permit is to:

- Implement the Napa River and Sonoma Creek sediment TMDLs to achieve their vineyard property discharge performance standards for sediment and storm runoff and to ultimately meet the TMDLs' sediment allocations and targets and restore properly functioning substrate conditions in channel reaches that provide habitat for anadromous salmonids.

Secondary project objectives include the following:

1. Protect and/or restore habitat for other native fish species in addition to anadromous salmonids;
2. Promote stream-riparian habitat protection and restoration;
3. Promote actions to restore fish passage at road crossings and streamflow diversions;
4. Promote management decisions and actions to maintain adequate in-stream temperature; and
5. Leverage voluntary conservation programs to assist vineyard owners/operators in meeting the requirements and objective of the proposed General Permit.

10.2. Alternatives that were Considered but not Further Analyzed

CEQA Guidelines section 15126.6, subdivision (a) requires that an EIR describe the rationale for selecting the alternatives to be discussed, and suggests that an EIR also identify any alternatives that were considered by the lead agency, but were rejected as infeasible (CEQA Guidelines, § 15126.6, subd. (c)). Following alternatives were considered, but were eliminated from further consideration and analysis for reasons expressed below.

10.2.1. Defer WDRs Pending Demonstration of Continued Progress

An alternative provided by agricultural landowner groups suggests it is reasonable for the Water Board to defer adoption of the WDRs, provided that continued progress is demonstrated through implementation of best management practices by vineyard property owners and/or operators. They

cited evidence of improved water quality[77] and stated that there has been large-scale implementation of best management practices, and both have occurred absent Water Board permit adoption (California Farm Bureau Federation, 2014, p.4; Napa Valley Grape Growers, 2014, p.1; and Winegrowers of Napa County, 2014, pp. 1-2).

This alternative is essentially a "Deferred Project" alternative and is not feasible because it does not meet project objectives. Absent adoption of the proposed General Permit, it is unlikely that the fundamental objective of the General Permit, which is to meet the TMDLs' sediment allocations and targets, and restore properly functioning substrate conditions in channel reaches that provide habitat for anadromous salmonids, would be achieved by the deadlines specified in the TMDLS (i.e., Sonoma Creek, December 2028 and Napa River, September 2029).

Furthermore, although, to date, farm plans have been completed on roughly 40 percent of the vineyard property acreage prior to proposed General Permit adoption, many of the BMPs to control sediment discharges from unpaved roads, and/or from gullies or unstable headwater channels (that are eroding in response to concentrated storm runoff that is discharged from hillslope vineyards) have not yet been implemented.

Lastly, this alternative is not consistent with Water Board policies including:

1. The implementation plans for the Napa River and Sonoma Creek sediment TMDLs which have been adopted into the Basin Plan, and which reference application of waste discharge requirements and/or waivers of waste discharge requirements to achieve sediment load reductions from Vineyard Properties; and

2. Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (State Nonpoint Source Policy), which requires the Water Board apply one of its regulatory tools (i.e., discharge prohibition, waiver of waste discharge requirements, and waste discharge requirements (WDRs)) to ensure that nonpoint source discharges that affect water quality are adequately controlled.

Therefore, considering the voluntary nature of the alternative, it was rejected from further analysis because, absent a program of regulatory oversight, including mandated deadlines for completion of necessary management actions, it is unclear whether TMDL allocations and targets will be achieved by the deadlines established in the Basin Plan amendments.

10.2.2. Reduced Scope of Roads Regulated Project Alternative

A reduced scope of roads project alternative was suggested by the California Farm Bureau, Napa Valley Grape Growers, and Winegrowers of Napa County. This alternative would reduce the scope and extent of the unpaved roads to be regulated under the proposed General Permit.

[77] We believe that the Napa Valley Grape Growers are referring to the pilot sediment TMDL monitoring program (Stillwater Sciences, 2013) in stating that "the most recent data we have seen indicates that all our work has dramatically improved the health of the Napa River watershed" (Napa Valley Grape growers, 2014, p.1).

Under this alternative, the discharger would identify and prioritize high- and moderate-high priority erosion sites (CFBF, 2014, p.5); and/or limit roads subject to regulation to those that serve the vineyard facility and/or operation, as opposed to the larger, vineyard property road network that is proposed in the General Permit. (California Farm Bureau Federation, 2014, p.5; Napa Valley Grape Growers, 2014, p.1; and Winegrowers of Napa County, 2014, p. 2).

This alternative proposes a reduced geographic scope that would result in a significant amount of property being excluded from the proposed General Permit. Given its reduced geographic scope, this alternative is not feasible because it does not support achievement of the 50 percent or greater reduction in road-related sediment delivery specified in both sediment TMDLs, a fundamental project objective. Similarly, limiting road erosion control actions to only discharger identified high- or medium-high priority sites would not support the fundamental project objective.

Unpaved road-related erosion is one of the largest sources of sediment to channels within the Project area (Water Board, 2009a; Water Board, 2008a; Napa County, 2014, p.1).

Surface erosion is chronic and ubiquitous on unpaved roads, and therefore, is a high priority for treatment, particularly wherever a significant length of an unpaved road drains runoff directly to streams or other waterbodies. Any road segment that has a continuous surface flow path to a natural stream channel during a 'design' runoff event is termed a hydrologically-connected road or road reach. Connectivity usually occurs through road ditches, road surfaces, gullies, or other drainage structures or disturbed surfaces. The TMDLs estimate that about 50 percent of the total length of unpaved roads in the Project area are hydrologically-connected (i.e., drain directly to streams and other water bodies) (Water Board, 2009b, p. 26; Water Board 2008b, p. 57). In order to achieve the 50 percent reduction in hydrologically-connected road length, the General Permit proposes a road sediment discharge performance standard of no more than 25 percent of the total length of unpaved roads be hydrologically-connected. A reduced road alternative is therefore rejected for further analysis because it would not achieve the discharge performance standard (i.e., ≤ 25 percent hydrologic connection) nor the sediment savings required by the TMDLs.

For the reasons provided above, this alternative was rejected from further analysis.

10.2.3. 40-Acre or Larger Vineyards Project Alternative

Agricultural landowner groups also suggested that the Water Board consider an alternative, in which only those properties of 40 acres or greater in size, which are planted in vineyard, would be required to enroll in the proposed General Permit (Napa Valley Grapegrowers, 2014, p.2; Winegrowers of Napa County, 2014, p.3). Water Board staff estimate that this proposed alternative would capture less than half of the planted vineyard acreage and only about 25 of the length of unpaved roads that occur on Vineyard Properties within the project area (Appendix B). Therefore, staff concludes that the fundamental project objectives – to meet the TMDLs sediment allocations and targets, and restore properly functioning substrate conditions in channel reaches that provide habitat for anadromous salmonids, would be achieved by the deadlines specified in the Basin Plan amendments. Hence, this alternative was rejected from further analysis.

10.2.4. Waiver Enrollment Criteria Project Alternative

This alternative responds to the California Farm Bureau Federation's suggestion that the Water Board apply the enrollment criteria proposed for an earlier, terminated waiver of WDRs permitting effort, to the proposed General Permit as the criteria for enrollment. Proposed enrollment criteria are as follows:

a) For valley floor vineyards (e.g., planted on slope ≤ 5 percent), the criteria for enrollment would be planted area ≥ 5 acres, and total property area ≥ 40 acres; and

b) For hillslope vineyard properties (e.g., any part of the vineyard is planted on a > 5 percent slope), the criteria for enrollment would be planted area ≥ 5 acres, and total property area ≥ 20 acres.

California Farm Bureau Federation states that the Technical Advisory Committee convened for the prior waiver of WDRs effort had previously indicated that by using these criteria, an estimated 85 percent of the vineyard parcels and cultivated acres in the Napa River and Sonoma Creek watersheds would be enrolled (California Farm Bureau Federation, 2014, p. 7).

We note, however, that the earlier waiver of WDRs effort relied on less detailed geographic information system (GIS) data and a much less detailed GIS analysis as compared to the information being used to inform the proposed General Permit. It now appears, through integration of more detailed and accurate GIS watershed information, that the actual values for enrollment would be closer to 70 percent of planted acreage and 50 percent of the total property acreage (Appendix B). As such, it is unlikely that TMDL to meet the TMDLs' sediment allocations load allocations for roads and for unstable areas, which is a fundamental project objective. Therefore this alternative is not considered further.

10.2.5. Hillslope Vineyards Lacking Erosion Control Plans and Vineyard Property Roads Alternative

This reduced-scope alternative was suggested by the County of Napa. This alternative would focus the General Permit exclusively on sediment sources which exhibit high potential for erosion and/or runoff increases, such as: a) hillside vineyards not already subject to county-approved erosion control plans; b) vineyard property roads; and c) restoration of riparian areas along Class I-III watercourses (Napa County, 2014, p.1).

Most vineyards developed with county-approved erosion control plans discharge low-to-moderate rates of sediment delivery to channels from soil erosion in the farmed area[78], however, staff also have observed instances (at these same sites) where engineered drainage systems are used, in some cases, storm runoff is concentrated and contributes to an erosional response along the hillslope overland flow pathway (e.g., gullying and/or shallow landsliding), and/or to active bed and bank erosion in headwater channels at-or-near the point(s) of discharge from the vineyard (Water Board, 2009a and 2009b, and Napolitano, 2008). Also, until recently, analysis and management actions to control runoff increases were not a required part of Napa County's review of proposed vineyards under its Conservation Regulations (this requirement came into effect in 2009), and are not currently a part of the Sonoma County process.

[78] The primary areas where new/additional BMPs will be implemented are areas where concentrated runoff from hillside vineyards, and/or excessive erosion along unpaved roads occurs.

As noted earlier, sediment delivery to channels caused by concentration of storm runoff is one of the largest land-use related sediment sources in both the Napa River and Sonoma Creek watersheds (Water Board, 2008a; Water Board, 2009a). Absent inclusion of all hillslope Vineyard Properties, it is highly unlikely that this significant source of sediment delivery to channels will be reduced by 50 percent by the 2028 and 2029 attainment dates specified in the Napa River and Sonoma Creek sediment TMDLs. Hence the fundamental project objective is unlikely to be achieved.

We concur with Napa County that vineyard property roads need to be regulated to control and substantially reduce sediment discharges, and this source category is already included in the proposed General Permit.

We also agree with Napa County on the need to restore riparian areas along watercourses, not only in the Napa River watershed but the Sonoma Creek watershed as well, which is part of the Project area. Over the years, the Water Board has provided grant funding towards planning and restoration efforts and has partnered with the Napa County and other stakeholders towards a coordinated approach on projects that provide watershed-wide benefits. Collaborative efforts have proven successful. Several reach-wide river and riparian restoration projects, undertaken as a result of the sediment Napa River sediment TMDL, grants, and collaboration, have led to improvements to channel condition and riparian habitat in the Napa River watershed. These include the voluntary restoration of the Napa River of the Rutherford reach (4.5 miles) and the Oakville to Oak Knoll reach (9 miles). In general, significantly less restoration work to date has been done in the Sonoma Creek watershed, with the exceptions of Carriger and Nathanson Creeks in Sonoma Valley.

Therefore, the General Permit advocates a voluntary approach across the entire Project area towards restoration of stream channels and/or riparian areas. Voluntary, collaborative programs are incentivized by the General Permit as a means to address channel incision and its deleterious effects on sediment delivery, and habitat complexity and connectivity (for additional information, see Section 2.1).

For these reasons, the EIR does not consider the County's suggested alternative further.

10.2.6. Expanded Low Sediment Delivery Exemption Alternative

This alternative responds to the Napa Valley Grape Growers and the Winegrowers of Napa County who commented that the Water Board should consider qualifying the following types of vineyard properties for the "Low Sediment Delivery" exemption[79]:

a) If there are no waterways on the property and/or all water could be retained onsite (Napa Valley Grape Growers, 2014, p. 2; Winegrowers of Napa County, 2014, p. 3);

b) If vineyard property owners have participated in stream-riparian restoration projects (e.g., the Rutherford Reach Restoration, the Oakville-to-Oak Knoll Project, etc.) along their property (Winegrowers of Napa County, 2014, p. 3); and/or

c) A certified farm plan has been completed under the Fish Friendly Farming, Code of Sustainable Winegrowing, and/or the property operates under a county-approved erosion control plan (Napa Valley Grape Growers, 2014, p. 2).

[79] The "Low Sediment Delivery" exemption is not included in the public review draft of the proposed General Permit.

Insufficient information has been provided to determine the location of the acreage that would potentially qualify for exemption under the “Low Sediment Delivery” exemption as proposed. Therefore, the draft EIR conservatively evaluates BMP implementation at all properties that otherwise match the enrollment criteria, regardless of whether some fraction of these might in fact qualify for a low sediment delivery exemption.

Stream-riparian restoration actions are not required under the proposed General Permit; although the General Permit provides incentives for voluntary participation in such efforts. In any event, for the purposes of impact analysis, the EIR conservatively includes all Vineyard Properties that meet the enrollment criteria, whether or not they would in fact qualify for the “Low Sediment Delivery” exemption as proposed, or an expanded or revised version of this exemption that would include participation in stream-riparian restoration projects.

With regard to having completed a certified farm plan under the Fish Friendly Farming Program, and/or the Code of Sustainable Winegrowing, and/or a county-approved erosion control plan as a basis for qualifying for the “Low Sediment Delivery” exemption, completion of a farm plan alone does not equate to full implementation of a farm plan. Full implementation of a farm plan that meets the performance standards of the General Permit is necessary to meet Project objectives. Planning alone, without full implementation does not qualify for exemption. Lastly, approval of Third-Party Programs or Qualified Professionals by the Executive Officer of the Water Board will occur following adoption of the proposed General Permit. For these reasons, this alternative was not considered further.

10.3. Alternatives Considered for Further Consideration

This EIR considers the following alternatives:

a) The No Project alternative;

b) An alternative, that would raise the threshold for regulation of a Vineyard Property to ≥10 acres planted in grapes (smaller vineyards would not be required to enroll); and

c) An alternative that would exclude vineyard properties that discharge into municipal reservoirs, from the requirement to participate in the Water Board permit program (vineyards upstream of municipal reservoirs would not be required to enroll). Five municipal reservoirs are located in the Napa River watershed (Kimball Canyon Reservoir, Bell Canyon Reservoir, Rector Reservoir, Lake Hennessey, and Milliken Canyon Reservoir).

10.3.1. Alternative 1: No Project

State CEQA Guidelines section 15126.6, subdivision (e) provides that a No Project Alternative shall also be evaluated along with its impact. The No Project Alternative shall discuss existing conditions at the time the Notice of Preparation was published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans, and consistent with available infrastructure and community services.

Under the No Project Alternative, Vineyard Property sediment discharges as identified in the sediment TMDLs, would not be regulated. It is highly probable that sediment impairments in the Napa River and Sonoma Creek watersheds would not be resolved. Degraded streambed substrate conditions would persist, and cause significant adverse impacts to spawning and rearing habitat for:

a) Steelhead populations listed under the federal Endangered Species Act;

b) Locally rare Chinook salmon populations; and c) exceptionally diverse native resident fish species assemblages (Leidy, 2007, pp. 146-160 and Appendix III).

As such, the fundamental objective of the proposed project would not be achieved.

Under the No Project alternative, significant impacts to river habitat and to dependent native fish would persist. Because the No Project alternative fails to meet the basic objectives, this EIR does not consider the No Project alternative in further detail.

10.3.2. Alternative 2: Enroll Vineyard Properties Where ≥ 10 acres Planted in Vineyard

As included in the Notice of Preparation, Alternative 2 relaxes the criteria for enrollment to ≥ 10 acres planted in vineyard. This alternative would enroll approximately 60 percent of the total vineyard property acreage, and approximately 85 percent of the planted vineyard acreage that occurs within the project area. Table 10-1 provides a summary of the expected environmental benefits and the scale of significant impacts of the proposed project and also of alternatives at sites within the Napa River watershed[80].

As a tool for evaluation of potential impacts of compliance actions, we used available GIS information to estimate the relative scale of compliance actions under the preferred project and also the alternatives, that would be associated with actions to achieve performance standards for sediment discharge from roads and concentrated runoff from hillslope vineyards[81]. Hillslope planted vineyard acreage and total

[80] Table 10-1 characterizes total vineyard property and planted vineyard acreage in the Napa River watershed, where 82 percent of the estimated total vineyard property acreage within the entire project area occurs. Table 10-1 does not characterize planted acreage of vineyards in the Sonoma Creek watershed because no GIS information is available that can be validated (based on a description of metadata). Lacking this information, we assume that the ratio of property acreage to planted acreage, and hillslope vineyard acreage to valley floor vineyard acreage that have been estimated for Napa, also approximately characterize the conditions in Sonoma.

[81] Based on extensive field surveys and review of farm water quality protection plans for more than 100 Vineyard Properties including more than 10,000 acres of planted grapes, Water Board staff conclude that it is likely that almost all Vineyard Properties within the project area already have implemented effective BMPs, as needed to achieve the performance standards for vineyard surface erosion and discharge of nutrients and pesticides. Also, at sites that do not meet these performance standards already, BMP implementation

vineyard property acreage are used as a primary indices both for assessing the magnitude of sediment reductions that would be achieved and also for assessing the scale of potentially significant impacts to Air Quality, Biological Resources, and Cultural Resources[82].

As shown in Table 10-1, Alternative 2 is similar to the Proposed Project. Significant impacts and potential sediment reductions, both are about 10 percent lower than the Proposed Project because Alternative 2 would enroll about 10 percent less hillslope vineyard acreage, as compared to the Proposed Project.

Alternative 2 would be almost as effective in achieving the fundamental objective of the project - to facilitate resolution of the sediment in the Napa River and Sonoma Creek watersheds- and also almost as effective in achieving the secondary project objectives including protection of substrate conditions in channels reaches located upstream of municipal reservoirs and also sediment conditions in the reservoirs.

potential impacts with mitigation incorporated would be less than significant to all resource categories (See Chapter 3 of this draft EIR).

[82] There are two types of scenarios where BMP construction/installation may occur in previously undisturbed areas located within hillslope Vineyard Properties (e.g., a detention basin must be constructed, and/or a problematic road segment must be relocated), where in some locations after full implementation of all feasible mitigation measures, that such construction could result in significant impacts to Biological Resources and/or Cultural Resources. These significant impacts are discussed in detail in Sections 3.2 and 3.4.

Table 10-1: Summary of Enrollment, Benefits, and Potential Impacts of Proposed Alternatives for Vineyard Properties in the Napa River Watershed.

Criteria for enrollment:	**Proposed Project:** **≥ 5-Acre Planted** **All Vineyard Properties**	**Alternative 2:** **≥ 10-Acre Planted** **All Vineyard Properties**	**Alternative 3:** **≥ 5-Acre Planted** **All Vineyard Properties except for those Upstream of Municipal Reservoirs**
Project Area (mi^2)	592	592	509
In Napa River watershed [a]			
Total Vineyard Property (ac):	90,000	76,000	69,000
Total Hillslope Planted (ac):	15,000	13,700	12,200
Upstream of Reservoirs			
Vineyard Property (ac):	20,000	16,000	0
Hillslope Planted (ac):	2,800	2,600	0
Downstream of Reservoirs			
Vineyard Property (ac):	70,000	60,000	70,000
Hillslope Planted (ac):	12,200	11,100	12,200
Rank with regard to effectiveness in achieving the fundamental project objective:	1	2	1
Rank with regard to achieving secondary project objectives:	1	2	3

[a]Within the Napa River watershed, the total area of property that includes a planted vineyard of any size is 133,000 acres. Total area of planted vineyards within the watershed is 45,000 acres, 17,000 acres of which are located on hillslopes, and 13,100 aces of which are located downstream of the municipal reservoirs.

10.3.3. Alternative 3: Enroll Vineyards ≥ 5 acres throughout Project area, except those Upstream of Reservoirs

Under Alternative 3, all Vineyard Properties within the project area where ≥ 5 acres are planted in vineyard would be enrolled, except for those that drain into five municipal watersheds that are located within the Napa River watershed[83]. Alternative 3 would be the same as the proposed Project for the Sonoma Creek watershed. This alternative would be as effective as the Proposed Project in achieving the fundamental objective because the Napa River sediment impairment is related to elevated amounts of sand in the bed of the Napa River and in tributary reaches that provide potential habitat for anadromous salmonids. Any sand discharged from land areas located upstream of the municipal reservoirs is trapped in the very large reservoirs, and therefore is not discharged into the Napa River, and/or into tributary reaches that provide habitat for anadromous salmonids.

Under Alternative 3, the extent of the project area would be reduced from 592-mi^2 to 509-mi^2. Total Vineyard Property acreage upstream of municipal reservoirs that would be enrolled under the Proposed Project is 20,000 acres (38 percent of the land area draining into the reservoirs) and under Alternative 2 is 16,000 acres (30 percent of the land area draining into the reservoirs). These properties would not be required to enroll under Alternative 3. Therefore, Alternative 3 would not protect substrate conditions in channel reaches located upstream of these reservoirs, and/or sediment conditions in the reservoirs, which is a secondary project objective.

Under Alternative 3, comparing hillslope vineyard acreage and total Vineyard Property acreage that could be enrolled under the Proposed Project versus under Alternative 3, potential impacts to air quality and biological and cultural resources would be reduced by about 20 percent under Alternative 3, as compared to the proposed Project. Similarly, potential beneficial reductions in the amount of sediment discharged into stream channels would be about 20 percent lower than the proposed project throughout the Project area, but equivalent to the proposed Project's beneficial effect on sediment reduction in the Napa River and tributary reaches that provide habitat for anadromous salmonids.

10.4. Comparison of the Environmental Consequences of the Project Alternatives

The relative impacts of various project alternatives identified for consideration in this document, are shown in Table 10-2. Because the No Project Alternative is equivalent to the CEQA Baseline, it has no impacts. However, because the no project alternative fails to meet the basic project objectives it is not evaluated further. The significance of each impact shown on Table 10-2 is assumed to be prior to implementation of feasible mitigation measures. This is done to identify which alternatives would avoid or substantially lessen one or more significant impacts, as required by State CEQA Guidelines section 15126.6, subdivision (a). For the level of significance of the proposed project after mitigation, refer to the impact analysis chapters 4 - 8.

[83] These reservoirs are Kimball Canyon Reservoir, Bell Canyon Reservoir, Rector Reservoir, Lake Hennessey, and Milliken Canyon Reservoir.

Table 10-2: Comparison of Project Alternatives

Impact	**Proposed Project** ≥ 5 acres planted	**Alternative 2** ≥ 10 acres planted	**Alternative 3** ≥ 5 acres planted except for upstream of municipal reservoirs
Air Quality			
Impact 5.1: Compliance with the General Permit could conflict or obstruct implementation of the applicable air quality plan. Construction of BMPs that involve earth moving completed at Vineyard Properties throughout the project area may have the potential to conflict with implementation of an applicable air quality plan. The primary pollutant of concern is PM_{10} - fine particulate matter. Also, at some Vineyard Properties, BMP construction that involves earth-moving may have the potential to entrain naturally occurring asbestos.	S	S (≈10% reduction in significant impacts as compared to proposed project)	S (≈20% reduction in significant impacts as compared to proposed project)
Impact 5.2 – Compliance with the General Permit could violate air quality standards or contribute substantially to an existing or projected air quality violation. Compliance actions (e.g., construction of BMPs that involve earth moving) completed at Vineyard Properties throughout the project area could violate air quality standards or contribute substantially to an existing or projected air quality violation. The primary pollutant of concern is fine particulate matter.	S	S (≈10% reduction in significant impacts as compared to proposed project)	S (≈20% reduction in significant impacts as compared to proposed project)

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Air Quality (continued)			
Impact 5.3 - Compliance with the General Permit does not have the potential to result in cumulatively considerable net increases of any non-attainment pollutant for which the project region is under an applicable federal or State ambient air quality standard. The General Permit will not result in new land uses, housing, or other uses that would generate sustained air emissions. Compliance with the General Permit would not result in the permanent installation of stationary engines such as diesel-fueled motors and therefore would not permanently increase emissions from Vineyard Property operations. The General Permit does not propose land uses that are inconsistent with the current land use designation in the Sonoma County and Napa County general plans. Furthermore, General Permit compliance projects would be consistent with the 2001 Bay Area Ozone Attainment Plan and the 2000 Bay Area Clean Air Plan. Therefore, the Project would not result in a cumulatively considerable net increase in any criteria pollutant. This would be a less than significant impact.	LS	LS	LS

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Air Quality (continued)			
Impact 5.4 - Compliance with the General Permit may have the potential to expose sensitive receptors to substantial pollutant concentrations Vineyard Properties regulated by the General Permit are located within a Project area of approximately 600 square miles and residential uses in these agriculturally-zoned districts are very low density. Although vineyards are generally located in rural areas, given the sheer size of the Project area, it is possible that some vineyard properties requiring coverage under the General Permit may be located near schools, hospitals, and other sensitive land uses. Although compliance with the General Permit should not result in the construction and/or operation of new, stationary sources of air emissions, such as diesel engine, construction undertaken to implement the requirements of the General Permit could result in temporary increases in particulates in the air in the immediate vicinity of the grading and construction operation, and could thus pose a significant impact to sensitive receptors to pollutant concentrations.	LS	LS	LS

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Air Quality (continued)			
Impact 5.5 - Compliance with the General Permit will not create objectionable odors affecting a substantial number of people. In general, the types of land uses that pose potential odor problems include refineries, chemical plants, wastewater treatment plants, landfills, composting facilities, and transfer stations. No such uses are proposed by the General Permit.	LS	LS	LS

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Air Quality (continued)			
Impact 5.6 - Generation of short-term construction-related GHG emissions from a linear construction feature Based on the assumptions and data input into the Emissions Model, If >1.6 miles of road is excavated in any given year, the project would exceed the threshold for impact. Throughout the Project Area, about 20 miles of road per year could be excavated, which is much greater than the threshold for impact. *Note: the Emissions Model conservatively applies the GHG significance threshold for operational emissions to BMP construction activities. However, long-term "operational emissions" are expected to fall below the BAAQMD threshold of significance. Also, GHG reductions that would occur as a result of decreases in tillage and increases in cover crops, substantial reductions in soil erosion throughout vineyard properties, and increases in riparian vegetation are not accounted for in the analysis of the overall effect of the Proposed Project on GHG emissions.*	S	S (≈10% reduction in significant impacts as compared to proposed project)	S (≈20% reduction in significant impacts as compared to proposed project)

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Air Quality (continued)			
Impact 5.7 - Generation of short-term construction-related GHG emissions from a non-linear construction feature BMP implementation in farmed areas, as compared to the baseline, would decrease tillage and excavation. BMP implementation along existing unpaved roads is linear. The only large non-linear BMP would be a detention basin, which could be constructed at some existing vineyard properties where the vineyard replaced a forest. In these cases, typically the detention basin could require about 3 percent of the vineyard area. California Dept. of Forestry records document ≈ 450 ac of timber conversion over the past 17 years. Also, increasing trends in forest cover are documented since the early 1940s (SFEI, 2003a and 2003b). Assuming very conservatively that total historical conversion for vineyards in the project area is ≤ 2000 acres (more than four times the amount during the past 17 years), then 135 acres would be excavated for detention basins and this would occur over a 10-year period, for an average of about 14 acres of construction per year, which would generate much less than 1100 metric tons of CO_2 per year, which is the significance threshold for GHG impacts.	LS	LS	LS

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Air Quality (continued)			
Impact 5.8 - Generation of long-term operational (e.g., BMP maintenance) GHG emissions from maintenance of all BMPs Threshold of significance is > 735 additional vehicle trips/day occurring at properties implementing BMPs to comply with the General Permit. For the Permit to exceed this threshold, a new BMP maintenance task that was event-related would have to occur at nearly all properties enrolled, and all would have to occur on the same day. The most likely scenario would be inspection and/or emergency repairs of BMPs during or soon after a large storm. Although this is a plausible scenario for estimating the maximum number of vehicle trips related to BMP maintenance, under the baseline, these types of storm-related inspections of BMPs in farm areas and/or roads are typical at sites vulnerable to erosion. New BMPs in these areas, presumably if they are at least as effective, would not result in > 735 new (additional) vehicle trips per day (even during a storm event).	LS	LS	LS

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Biological Resources			
Impact 6.1a: Compliance with the General Permit may have the potential to have a substantial adverse effect, either directly or through habitat modifications, on some species identified as a candidate, sensitive, or special status species. Aquatic and/or riparian special-status species - Compliance with the General Permit, over the long-term, would substantially reduce fine sediment delivery to channels, attenuate storm runoff from vineyards and roads, and increase the extent of riparian vegetation, which would substantially enhance the quality of spawning and rearing habitat for salmon and steelhead, native resident fish species, and also the quality of stream and/or riparian habitats available for wildlife species. However, the actual construction of BMPs within vineyards, roads, and/or eroding channels and gullies at multiple locations throughout hundreds of vineyard properties could have short-term adverse impacts on streambeds, riparian habitat, fish, and wildlife. These impacts if not addressed through construction activity controls could be significant.	S	S (≈10% reduction in significant impacts as compared to proposed project)	S (≈20% reduction in significant impacts as compared to proposed project)

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Biological Resources (cont.)			
Impact 6.1b: Compliance with the General Permit may have the potential to have a substantial adverse effect, either directly or through habitat modifications, on some species identified as a candidate, sensitive, or special status species. Upland special-status species – At some vineyard properties, noise generated by heavy equipment used to construct BMPs could disrupt breeding or nesting by special-status bird species that inhabit upland areas (i.e., areas that drain into wetlands, waters, or riparian areas). Also, at a small number of hillslope vineyard properties, detention basins and relocated road segments could be constructed in previously undeveloped upland areas. In total, up to 78 acres of undeveloped upland habitats could be converted to detention basins or relocated road segments. An unknown fraction of this area may overlap with habitats for special-status species, and where this is the case, BMP construction could cause significant impacts to several special-status plant species and/or to pallid bat, western red-eared bat, and/or Callippe silverspot butterfly.	S	S (≈10% reduction in significant impacts as compared to proposed project)	S (≈20% reduction in significant impacts as compared to proposed project)

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Biological Resources (cont.)			
Impact 6.2: Compliance with the General Permit may have the potential to have a substantial adverse effect on riparian habitat, or other sensitive natural community. The Water Board has regulatory authority to protect sensitive natural communities that are aquatic or riparian in nature (see 6.1 above) There exists the possibility however, that some BMPs may need to be constructed and/or maintained in previously undisturbed upland areas that may overlap with sensitive natural communities. The Water Board would not have oversight of the implementation of proposed mitigation measures required to protect sensitive natural communities located in upland areas, unrelated to protection of water quality or beneficial uses.	S	S (≈10% reduction in significant impacts as compared to proposed project)	S (≈20% reduction in significant impacts as compared to proposed project)

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Biological Resources (cont.)			
Impact 6.3: Compliance with the General Permit has the potential to cause a substantial adverse effect on federally protected wetlands. Some construction activities to comply with the General Permit would be occur in stream channels including removal of road crossings where problem roads are decommissioned (BMP-19), construction of road crossings over stream channels where new storm-proofed roads are constructed (BMP-20), and construction of soil biotechnical erosion control projects in eroding gullies and stream channels. Absent specification of construction activity controls and measures to avoid, minimize, and mitigate impacts to wetlands and other waters impacts could be significant.	S	S (≈10% reduction in significant impacts as compared to proposed project)	S (≈20% reduction in significant impacts as compared to proposed project)

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Biological Resources (cont.)			
Impact 6.4: Compliance with the General Permit has the potential to 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 native wildlife nursery sites. Absent proper construction activity controls and permit requirements to avoid impacts to movement of fish and wildlife species, decommissioning a problem road segment (BMP-19) and construction of a new storm-proofed road segment (BMP-20) would have the potential to impact migration of fish and/or wildlife species.	S	S (≈10% reduction in significant impacts as compared to proposed project)	S (≈20% reduction in significant impacts as compared to proposed project)
Impact 6.5: Compliance with the General Permit would not have the potential to conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance.	LS	LS	LS
Impact 6.6: Compliance with the General Permit would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan.	LS	LS	LS

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Cultural Resources			
Impact 7.1- Compliance with the General Permit may have the potential to cause a substantial adverse change in the significance of a historical resource Construction may occur in stream channels where 19th century or early 20th century rock walls or Civilian Conservation Corps (CCC) erosion control structures (e.g., stream bank or bed stabilization structures, check-dams, detention basins, etc.) are present, however, erosion control practices required under the General Permit are not likely to result in substantial adverse alteration of these features. Grading and construction usually would occur in vineyards and on roads that have been previously disturbed by recent agricultural human activity, not at, or in areas containing historical resources as defined by section 15064.5 of the CEQA Guidelines.	LS	LS	LS

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Cultural Resources (cont.)			
Impact 7.2 - Compliance with the General Permit may have the potential to cause a substantial adverse change in the significance of archaeological resource pursuant to § 15064.5. Actions to comply with the General Permit could involve both minor and larger-scale grading and construction. Large scale construction would generally be limited to road relocation, detention basin/managed wetland construction, and culvert replacement. Management practices such as modification of road drainage and measures to control erosion from the planted area and at points of discharge would generally be small in scale, and would be limited to shallow excavation. As noted above, however, in some cases, deeper excavation may be necessary to construct detention basins, relocate a road segment, and/or replace a road crossing and culvert. In some locations, such as near streams and at the base of hills, archaeological resources could be encountered.	S	S (≈10% reduction in significant impacts as compared to proposed project)	S (≈20% reduction in significant impacts as compared to proposed project)

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Cultural Resources (cont.)			
Impact 7.3: Compliance with the General Permit may have the potential to directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature. For the reasons stated in impact 7.2, this impact may have the potential to be significant.	S	S (≈10% reduction in significant impacts as compared to proposed project)	S (≈20% reduction in significant impacts as compared to proposed project)
Impact 7.4: Compliance with the General Permit may have the potential to disturb human remains, including those interred outside formal cemeteries. For the reasons stated in impact 7.2, this impact may have the potential to be significant.	S	S (≈10% reduction in significant impacts as compared to proposed project)	S (≈20% reduction in significant impacts as compared to proposed project)

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Hydrology and Water Quality			
Impact 8.1: Compliance with the General Permit would enhance water quality in the Napa River and Sonoma Creek. The project establishes General Waste Discharge Requirements for vineyard properties to attain and/or maintain water quality standards.	LS	LS	LS
Impact 8.2: The overall effect of actions taken to comply with the General Permit would be beneficial, potentially enhancing groundwater recharge Compliance with the General Permit including its performance standards for storm runoff from hillslope vineyards and hydrologic connectivity of roads will reduce storm runoff, and therefore, contribute to enhancement of groundwater recharge.	LS	LS	LS
Impact 8.3: Actions taken to comply with the General Permit would result in a beneficial reduction in storm runoff. See discussion of impact 8.2	LS	LS	LS

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Hydrology and Water Quality (cont.)			
Impact 8.4: Actions taken to comply with the General Permit would over the long-term, result in beneficial reductions in erosion and siltation to the Napa River, Sonoma Creek, and to their tributaries.			
Long-term effects: General Permit requires compliance actions to control sediment discharges and storm runoff increases from farms and roads, toward the goal of achieving 50 percent reductions in sediment delivery to channels within vineyard properties in the Napa River and Sonoma Creek watersheds. The long-term effect would be beneficial and significant.	LS (Significant beneficial effect)	LS (beneficial effect = 90% of that under Proposed Project)	LS (beneficial effect = 80% of that under the Proposed Project)
Short-term effects: Absent the requirement to implement effective construction activity controls, short-term erosion at some BMP sites following construction, could cause sediment to be deposited in water bodies, including stream channels that support sensitive and/or listed aquatic species, and these potential short-term and temporary impacts if they occurred, could be significant	S	S (≈10% reduction in significant impacts as compared to proposed project)	S (≈20% reduction in significant impacts as compared to proposed project)

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Hydrology and Water Quality (cont.)			
Impacts 8.5: Compliance with the General Permit would reduce sediment delivery to San Pablo Bay, adversely impacting dissolved oxygen concentration therein, and maintenance and/or restoration of tidal marshes The Farm Bureau commented on the NOP that impacts of reduced sediment supply to San Pablo Bay (SPB) should be evaluated including: a) the possibility that reduced suspended sediment concentration in SPB could cause increased phytoplankton growth, decreased dissolved oxygen, and fish kills; and b) that reduced sediment supply to San Pablo Bay could impair tidal wetland maintenance & restoration. Although compliance with the General Permit would reduce land-use related sediment from vineyard properties by as much as 50%, even after this and all other actions called for in both TMDLs are implemented, sediment supply from the Napa River and Sonoma Creek still would remain at approximately 125% of natural background. Also, climate change models for CA predict much larger and more frequent floods, which would be expected to increase natural sediment supply substantially as compared to the historical period.	LS	LS	LS

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Hydrology and Water Quality (cont.)			
Impact 8.6: General Permit compliance actions would not cause the capacity of a stormwater drainage system to be exceeded. The overall effect of compliance actions on storm runoff would be a beneficial and substantial decrease in storm runoff peak from vineyard properties. Therefore, compliance actions would not cause additional runoff water which could exceed the capacity of a stormwater drainage system.	LS	LS	LS
Impact 8.7: General Permit compliance actions would not increase polluted runoff and/or degrade water quality. The project establishes Waste Discharge Requirements for vineyard properties to attain or maintain water quality standards. The effect of the project on attainment of water quality will be beneficial.	LS	LS	LS
Impact 8.8: General Permit would not affect placement of housing in flood hazard areas. The General Permit does not affect placement of housing. There is no impact.	LS	LS	LS

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Hydrology and Water Quality (cont.)			
Impact 8.9: General Permit compliance actions would not impede or redirect flood flows. Two types of compliance actions involve placement of fill in channels: a) storm-proofing road crossing over channels; and b) soil bioengineering projects to control erosion in gullies and/or stream channels. Storm-proofing includes upgrading the road crossing to convey the 100-year peak flow. Therefore, where undersized or failing culverts are located in flood hazard areas, the effect of actions taken to comply with the General Permit would be beneficial (to reduce flooding). Soil bioengineering projects would only be constructed in channels or gullies located on hillslope vineyard properties, none of which overlap with defined flood hazard areas. Therefore, the project would not impede or redirect flood flows in a flood hazard area.	LS	LS	LS

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Hydrology and Water Quality (cont.)			
Impact 8.10: General Permit compliance actions would not expose people or structures to risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. In order to comply with the General Permit, a small number of detention basins (i.e., small dams) would be constructed. Any detention basin ≥ 25 feet high and/or that stores ≥ 50 ac-ft would be subject to permit and inspection programs by the California Department of Water Resources, Division of Safety of Dams. In addition, local government reviews and approvals are required for smaller dams in Sonoma and Napa counties. Sonoma County requires plans be prepared by a licensed civil engineer, and California Division of Safety of Dams "Guidelines for Small Dams" be followed, in addition to requirements for minimum freeboard and compaction of fill. In Napa County, plans have to be stamped by a licensed civil engineer and soil engineering and geology reports also would be required. Considering the above, potential impact is less than significant.	LS	LS	LS

Impact	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
Hydrology and Water Quality (cont.)			
Impact 8.11: General Permit compliance actions would not expose people or structures to risk of loss, injury, or death by inundation from a seiche, tsunami, or mudflow.	No impact	No impact	No impact

To summarize, the General Permit would result in increases in the implementation of commonly-used BMPs and construction of structural controls (such as cover crops, erosion control facilities, unpaved road repair and reshaping, and stormwater runoff controls) to meet water quality requirements. Implementation of BMPs could result in short-term impacts related to construction activities (grading, vegetation removal, stockpiling of soils, and mobilizing heavy equipment). Maintenance of selected BMPs (e.g., site inspections, compliance monitoring, inspecting and maintaining drainage facilities, cover crop maintenance, and maintaining roads that service the vineyard facilities) will not result in any long-term environmental impacts.

The General Permit would have no or negligible impacts on aesthetics, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, traffic, and utilities and service systems. All project alternatives would have potential impacts on air quality/greenhouse gas emissions, biological resources, and cultural resources because compliance with each alternative would require the use of the same types of equipment and the construction of the same types of commonly used, industry-supported BMPs to implement the General Permit. Potential impacts would be greater for the Proposed Project (≥ 5-acre planted above and below municipal reservoirs) because General Permit implementation would result in construction over a larger geographic area as compared to the two, reduced geographic scope alternatives (i.e., ≥ 10-Acre Planted or ≥ 5-Acre Planted at all Vineyard Properties located below upstream of municipal reservoirs). However, beneficial effects on water quality and aquatic and riparian habitats, also are greatest under the Proposed Project because its performance standards are achieved over a wider geographic area.

10.5. Environmentally Superior Project Alternative

The ultimate goal of the project is water quality improvements, including restoration of fish habitat and preservation of endangered species. The EIR identifies impacts associated with temporary construction measures that will be necessary to implement sediment controls on Vineyard Properties. In this case, there is an inverse relationship between the effects caused by temporary construction activities and overall water quality improvements. That is, the more Vineyard Properties enrolled in the Order, the more construction activities will occur to control sediment (and thus environmental effects), but ultimately, the greater the expected improvements to sediment conditions in the creeks and overall water quality.

The environmentally superior project is, “on balance, the alternative with the least significant effect.” (Bass, et al., CEQA Deskbook (2012) Identifying the Environmentally Superior Alternative, p. 178.) Strictly interpreting this definition of “environmentally superior project” to only refer to significant effects with negative impacts on the environment, the alternative that would result in the fewest impacts is the No Project alternative. The No Project alternative would result in no impacts because no construction of sediment controls would occur. The No Project alternative, however, does not meet the fundamental or secondary project objectives of improving water quality to the point where the Napa River and Sonoma Creek may be removed from the Clean Water Act section 303(d) list for sediment impairments.

Constructing the phrase “environmentally superior project” in this manner, which omits consideration of long-term beneficial environmental impacts, fails to achieve CEQA’s primary goal: the “preservation and enhancement of the environment.” (Pub. Res. Code § 21000(e).) CEQA directs governmental agencies to “take all action necessary to provide the people of this state with clean … water” and

identify ways that environmental damage can be avoided or significantly reduced." (Pub. Res. Code § 21001(b) and CEQA Guideline § 15002(a)(2).)

Considering the primary purpose and directives of CEQA, on balance, the environmental benefits that will occur as a result of implementation of the control measures is greater than the potential environmental impacts associated with the construction of the controls. The environmentally superior project, therefore, is the project with the greatest environmental benefits, which is the **Proposed Project**.

Table 10-3: Alternatives Comparison: Ability to Meet Project Objectives

Objective	Proposed Project ≥ 5 acres planted	Alternative 2 ≥ 10 acres planted	Alternative 3 ≥ 5 acres planted except for upstream of municipal reservoirs
To implement the Napa River and Sonoma Creek sediment TMDLs to achieve discharge performance standards for sediment and storm runoff and to ultimately meet the TMDLs' sediment allocations and targets and restore properly functioning substrate conditions in channel reaches that provide habitat for anadromous salmonids.	Y	Y	Y
To control discharges of sediment and/or storm runoff from vineyards into channel reaches that provide habitat for other native fishes.	Y	Y	N
To promote stream-riparian habitat protection and restoration	Y	Y	Y
To promote actions to restore fish passage at road crossings and streamflow diversions	Y	Y	Y
To promote management decisions to maintain adequate in-stream temperature	Y	Y	Y
To encourage voluntary conservation programs to assist vineyard owners/operators I meeting the requirements and objective of the proposed General Permit.	Y	Y	Y

Y = Fulfills project objectives No = Does not fulfill project objectives

11. Other CEQA-Required Sections

11.1. Growth Inducing Impacts

Introduction

The California Environmental Quality Act (CEQA) State Guidelines Section 15126.2(d) requires that an Environmental Impact Report (EIR) evaluate the growth-inducing impacts of a proposed action. A growth-inducing impact is defined by the State CEQA Guidelines as:

> *"The way in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth…It is not assumed that growth in an area is necessarily beneficial, detrimental, or of little significance to the environment."*

As described in the draft EIR for the Napa County General Plan Update (Napa County, 2007):

> "A project can have a direct and/or indirect potential to induce population and/or economic growth. For example, a direct effect on growth would be from the construction of new housing. A project would have indirect effect on potential growth, for example, if it established substantial new permanent employment opportunities (e.g., commercial, industrial or governmental enterprises) or if it would involve a construction effort with substantial short-term employment opportunities that would indirectly stimulate the need for additional housing and services to support the new employment demand (*Napa Citizens for Honest Government v. Napa County Board of Supervisors*). Similarly, a project would indirectly induce growth if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service. A project providing an increased water supply in an area where water service historically limited growth could be considered growth inducing.
>
> The CEQA Guidelines further explain that the environmental effects of induced growth are considered indirect impacts of the proposed action. These indirect impacts or secondary effects of growth may result in significant, adverse environmental impacts. Potential secondary effects of growth include increased demand on other community and public services and infrastructure, increased traffic and noise, and adverse environmental impacts such as degradation of air and water quality, degradation or loss of plant and animal habitat, and conversion of agricultural and open space land to developed uses.
>
> Growth inducement may constitute an adverse impact if the growth is not consistent with or accommodated by the land use plans and growth management plans and policies for the area affected. Local land use plans provide for land use development patterns and growth policies that allow for the orderly expansion of urban development supported by adequate urban public services, such as water supply, roadway infrastructure, sewer service, and solid waste service."

Growth Effects of the Project

The proposed project, a general permit to control pollutant discharges from vineyard properties, would have a very small - less than significant - effect on population and/or economic growth, **which would be related to small increases in employment at local resource conservation districts, non-**

profits, local government agencies, and/or environmental consulting firms to provide services related to farm plan development and implementation, and BMP reporting and monitoring.

Several hundred properties would be enrolled in the proposed General Permit. Half-or-more of these properties already have developed farm plans that are being implemented with the assistance of current employees at public and/or private enterprise located within the project area. In order to develop and implement farm plans at properties that do not already have plans developed, and to provide assistance with farm plan implementation, monitoring and reporting, we estimate that up to an additional 10 full-time jobs could be created to meet the demands for technical and/or administrative assistance to comply with the proposed General Permit. Even if the actual number just for the sake of argument, was an order of magnitude larger, compliance actions would have a very small overall effect on job creation that would result in a less than significant effect on economic and/or population growth within the project area. Therefore, the Proposed Project would not have growth inducing impacts.

11.2. Significant Irreversible Environmental Effects

CEQA Sections 21100(b) (2) and 21100.1(a) require that EIRs prepared for the adoption of plan, policy, or ordinance of a public agency must include a discussion of significant irreversible environmental changes of project implementation. In addition, CEQA Guidelines Section 15126.2(c) describes irreversible environmental changes as:

> *"Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified."*

The General Permit does not permit development of new vineyards, which is solely within the purview of the local land use authorities. The impact of compliance with the proposed General Permit, if any, would be to slightly increase the cost of: a) management of existing vineyard properties; and b) development and management of new vineyard properties, which based on economic considerations (Section 3.3), would result in a neutral effect on future vineyard development within the project area.

Implementation of the proposed General Permit would have no effect on the conversion of undeveloped open space land areas to residential, commercial, industrial, office, public and recreational uses.

Through the construction and/or maintenance of BMPs and/or other compliance actions associated with the proposed General Permit consumption of renewable, nonrenewable, and limited resources would include, but are not limited to: oil, gasoline, lumber, sand and gravel, water, steel, and similar materials. In addition, the proposed project would also result in significant unavoidable effects related to air emissions, including emissions of greenhouse gases (see Chapter 4, Air Quality).

11.3. Significant and Unavoidable Environmental Effects

CEQA Guidelines Section 15126.2(b) requires an EIR to discuss unavoidable significant environmental effects, including those that can be mitigated but not reduced to a level of insignificance. In addition, Section 15093(a) of the CEQA Guidelines allows the decision-making agency to determine the benefits of a proposed project outweigh the unavoidable adverse environmental impacts of implementing the project. The Water Board can approve a project with unavoidable adverse impacts if it prepares a "Statement of Overriding Considerations" setting forth the specific reasons for making such a judgment.

The following significant and unavoidable impacts, both project and cumulative, of the proposed General Permit and/or Project Alternatives are specifically identified in Sections 4 through 10 of this EIR. The reader is referred to the various environmental issue areas of these sections for further details and analysis of the significant and unavoidable impacts identified below.

Air Quality

Impact 5.1: Actions taken to comply with the General Permit could conflict with or obstruct implementation of the applicable air quality plans.

Impact 5.2: Actions taken to comply with the General Permit have the potential to violate air quality standards and/or to contribute to an existing or projected air quality violation.

Impact 5.4: Actions taken to comply with the General Permit have the potential to exposed sensitive receptors to substantial pollutant concentrations.

Impact 5.6: Actions taken to comply with the General Permit have the potential to generate significant GHG emissions.

Biological Resources

Impact 6.3: Noise generated by heavy equipment used to construct BMPs could disrupt breeding and/or nesting by special-status bird species.

Impact 6.4: Detention basins and/or new storm-proofed roads constructed to comply with the General Permit sited in undeveloped upland areas could impact special-status species and/or their habitats, and/or some sensitive natural communities.

Cultural Resources

Impact 7.2: Actions taken to comply with the General Permit may have the potential to cause a substantial adverse change to the significance of archeological resources.

Cultural Resources (cont.)

Impact 7.3: Actions taken to comply with the General Permit may have the potential to destroy unique paleontological resources or unique geological features.

Impact 7.4: Actions taken to comply with the General Permit may have the potential to disturb human remains, including those interred outside of formal cemeteries.

12. LIST OF PREPARERS

San Francisco Bay Regional Water Quality Control Board

Tamarin Austin –	Legal Review
Paul Modrell –	Agricultural and Forestry Resources
James Ponton –	Approach to Impact Analysis, Agricultural and Forestry Resources, Air Quality, and Project Alternatives
Mike Napolitano –	Introduction, Project Description, Biological Resources, Hydrology, and Cumulative Effects

Brewer Environmental

Doug Brewer –	Project Description

ECORP Consulting

Chris Stabenfeldt, AICP -	Project Management
Dave Krolick -	GIS
Dorienne Mendoza -	Agricultural and Biological Resources
Emily Mecke -	Biological Resources
Tamara Gallentine -	Cultural Resources
Jeremy Adams-	Cultural Resources
Lisa Westwood-	Cultural Resources
Brian Fedrow -	Technical Editor

KD Anderson

Wayne Shijo - Air Quality

Appendix A. Draft General Permit for Vineyard Properties

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

TENTATIVE ORDER NO. R2-2016-XXXX

GENERAL WASTE DISCHARGE REQUIREMENTS FOR VINEYARD PROPERTIES IN THE NAPA RIVER AND SONOMA CREEK WATERSHEDS

The California Regional Water Quality Control Board, San Francisco Bay Region, (Water Board), finds that:

Scope of Coverage

1. Order No. R2-2016-00XX (hereafter, Order) specifies general waste discharge requirements (WDRs) for existing and potential discharges of waste from Vineyard Properties located in the Napa River and/or the Sonoma Creek watersheds that meet the terms and conditions of this Order.

2. For purposes of this Order, a "Vineyard Property" is defined as the entire parcel or contiguous parcels under the same ownership, where grapevines are planted on part of the property. Landowners and operators of Vineyard Properties discharging, or proposing to discharge waste from a Vineyard Property are hereinafter referred to as "Dischargers".

3. Existing and potential discharges of waste from Vineyard Properties include storm runoff from vineyards and unpaved roads that contain elevated levels of sediment, pesticides or nutrients or excess runoff that may cause a condition of pollution or nuisance due to erosion or flooding. This Order also regulates Vineyard Properties with on-channel reservoirs that receive treated wastewater. Only a few such reservoirs are known to occur within the Sonoma Creek and/or Napa River watersheds. Discharges from these reservoirs also are defined as "waste discharges."

4. This Order regulates discharges from Vineyard Properties that meet the following criteria:
   a. Any *existing* Vineyard Property (including a replant) where ≥ 5 acres are planted in grapevines;

   b. Any *new* Vineyard Property where ≥ 5 acres are planted in grapevines on a slope ≤ 30 percent; or

   c. Any existing or new Vineyard Property where < 5 acres are planted in grapevines that is deemed by Water Board staff to discharge waste that could affect water quality and could be adequately regulated through this Order.

5. This Order does not apply to any new Vineyard Property where: a) vineyard development involves a timber conversion plan or permit; b) any part of a vineyard is located on a slope >

30 percent; or c) the proposed vineyard would be constructed on a Ridgetop[1]. A new Vineyard Property that meets any of these criteria must submit a report of waste discharge (ROWD) in accordance with Water Code section 13260 to be regulated through individual WDRs.

6. This Order contains three tiers that are based on the administrative costs to regulate Vineyard Properties and considers relative risk to water quality, as needed to achieve all water quality standards. Tier 1 through Tier 3 are defined as follows:

   Tier 1 (Stewardship Tier): A Discharger may qualify for enrollment under Tier 1 (Stewardship Tier), if the Farm Plan for the Vineyard Property, as described in Section F.1 and Attachment A, has been completed and Certified[2], the Certified Farm Plan is fully implemented to achieve all applicable performance standards for discharge, and (as applicable) the Vineyard Property establishes stream setbacks and/or participates in a tributary or reach-based stewardship (as specified in Attachment A).

   Tier 2: A Discharger may qualify for enrollment under Tier 2 if it has developed a Certified Farm Plan or is working with an approved Third-Party Program[3] or Qualified Professional[4] to develop a Certified Farm Plan for the Vineyard Property.

   Tier 3: Tier 3 Dischargers are those who elect to develop a Farm Plan for a Vineyard Property independently - without the Farm Plan being certified by an approved Third-Party Program or a Qualified Professional.

   Attachment A (Farm Plan Requirements) and Attachment E (Monitoring and Reporting requirements) provide additional information and specific details regarding conditions for compliance for Dischargers enrolled under Tiers 1, 2, and 3.

Water Quality Concerns

7. The Napa River, Sonoma Creek, and their tributaries provide habitat for federally listed steelhead populations, locally rare Chinook salmon populations, and exceptionally diverse native fish assemblages. Elevated concentrations of fine sediment (primarily sand) in streambeds and channel incision, defined by the progressive lowering of the streambed as a result of net erosion over the long-term, are significant threats to watershed fish populations and other special-status aquatic species including California freshwater shrimp, foothill yellow-legged frog, and western pond turtle.

[1] A Ridgetop is as defined per Sonoma County Code (Chapter 11): "A relatively flat topographic divide above divergent and descending slopes where one (1) or more of the descending slopes has a natural slope steeper than fifty (50) percent for more than fifty (50) feet in slope length."

[2] "Certified" is defined as the Farm Plan being complete, and upon its full implementation the Vineyard Property would achieve all applicable performance standards for discharge.

[3] Third-Party Programs provide technical assistance/expertise to help Dischargers comply with requirements of this Order. See Attachment C for description of Third-Party Programs.

[4] A "Qualified Professional" is defined to include a California registered professional in a discipline associated with erosion and sediment control including for example a professional engineer, licensed geologist, or certified professional in erosion and sediment control.

8. Channel incision is a significant fine sediment source, and is the primary mechanism for habitat simplification in the Napa River, Sonoma Creek, and alluvial reaches of their tributaries. As channels have incised, spawning and rearing habitats have been substantially reduced. Channel incision has separated the channels from floodplains, and reduced baseflow persistence and the extent and diversity of riparian vegetation.

9. Vineyard Properties, including farming areas and extensive unpaved roads, have been identified as significant sources of fine sediment discharges to the Napa River, Sonoma Creek, and their tributaries. Storm runoff increases resulting from infiltration losses in vineyards and roads are two of several causes for channel incision.

10. Vineyard Property development and management practices, including but not limited to: 1) deep ripping of soils to develop and/or replant a vineyard, 2) conversion of natural vegetation cover, 3) soil compaction as a result of the use of tractors to conduct agricultural activities, 4) establishment of engineered surface and subsurface drainage, and 5) the development and maintenance of property access roads, may cause or contribute to significant increases in erosion and/or storm runoff, which are direct or indirect sources of elevated rates of fine sediment delivery to channels, and/or in some cases a contributing factor to downstream channel incision.

11. Unpaved roads are a water quality concern because of their hydrologic connectivity to streams or other water bodies. Any road segment that has a continuous surface flow path to a natural stream channel during a storm runoff event is termed a “hydrologically connected” road or road reach. Connectivity usually occurs through road ditches, road surfaces, gullies, or other drainage structures or disturbed surfaces. Road-related erosion has been identified as a significant sediment source in both the Napa River and Sonoma Creek watersheds.

12. Vineyard Properties are a potential source of toxicity or bio-stimulatory substances where the application rate and/or discharge of agrichemicals and/or fertilizers are not properly controlled to limit discharges to the surface and/or groundwater.

13. Vineyards developed on slopes > 30 percent present a much higher potential for significant landslide, fluvial, and surface erosion as a consequence of vineyard construction and management actions including removal of natural vegetation cover, grading, deep ripping of soils, engineered drainage, additional road development on steep slopes. Therefore, new Vineyard Properties developed on slopes > 30 percent, as described earlier, must submit a report of waste discharge (ROWD) in accordance with Water Code section 13260 to be regulated through individual WDRs.

14. When a forest is converted to a vineyard, rainfall interception, soil infiltration capacity, evapotranspiration, and root strength all can be substantially reduced with the potential for consequent significant increases in storm runoff and erosion. Also, tree root strength, in most circumstances, also greatly increases mechanical resistance to shear stress, and therefore, conversion from forest cover to vineyard also can significantly increase landslide activity. Therefore, new Vineyard Properties that involve a timber conversion plan or permit,

as described earlier, must submit a ROWD in accordance with Water Code section 13260 to be regulated through individual WDRs.

15. New vineyard constructed on a Ridgetop (as defined earlier) also pose high risk of significant sediment delivery to channels as a result of their discharge into colluvial swales and headwater channels that are especially sensitive to development-related changes in storm runoff. Therefore, new Vineyard Properties that are constructed on a Ridgetop, as described earlier, must submit a ROWD in accordance with Water Code section 13260 to be regulated through individual WDRs.

Background

16. This Order implements the sediment Total Maximum Daily Loads (TMDLs) for the Napa River and Sonoma Creek Watersheds that are included in Chapter 7 of the Water Quality Control Plan for the San Francisco Bay Basin Plan (Basin Plan). These TMDLs include load allocations to sediment sources and implementation plans that call for the adoption of pollutant control programs to control sediment discharges from Vineyard Properties, and discharges from other significant land-use related sediment sources. The implementation plans also recommend developing and implementing plans to enhance stream-riparian habitat conditions and reduce sediment supply.

17. Vineyard Properties constitute about 162,000 acres, or 40 percent of the total land area in the Napa River and Sonoma Creek watersheds. Vineyard Properties include: planted grapevines, which cover approximately 59,000 acres; farm buildings; adjacent open-spaces under natural vegetation cover; and property-wide road networks - most of which are unpaved. The 59,000 acres of planted grapevines correspond to about 16 percent of the total land area in these two watersheds.

18. In order to achieve load allocations for soil erosion in farmed areas, as specified in the Basin Plan, effective erosion and/or sediment control measures need to be in place at almost all Vineyard Properties in these watersheds. Based on GIS analysis, establishing a five-acre vineyard size threshold as the primary criteria for enrollment under the Order will result in approximately 90 percent of the vineyard acreage and two-thirds of total property acreage (i.e., a Vineyard Property includes the Farm Area, property-wide access roads, reservoirs, undeveloped areas) having effective Best Management Practices (BMPs) in place for the control pollutant discharges.

19. Monitoring and reporting under Tier 1 are reduced as compared to Tier 2 and 3 because Dischargers enrolled under Tier 1 have: a) fully implemented a certified Farm Plan to meet all applicable performance standards for discharge, in some cases in advance of the deadlines for compliance; and b) also as applicable, have achieved the performance standards for Fully Protected Stream-Riparian Corridors (as specified in Attachment A). Actions taken to protect and/or restore stream-riparian corridors significantly enhance habitat complexity and connectivity, contributing to resolution of impacts as related to channel incision.

Regulatory Framework

20. The State Water Resources Control Board (State Water Board) and the Regional Water Boards are the primary agencies with responsibility for the protection of water quality pursuant to the Porter-Cologne Water Quality Control Act (Porter-Cologne Act, codified in Water Code Division 7). The Legislature declared that the activities and factors that may affect the quality of the waters of the State shall be regulated to attain the highest water quality that is reasonable, considering all demands being made on it (Water Code § 13000).

21. Water Code (CWC) section 13260 (a) requires that any person discharging waste or proposing to discharge waste that could affect the quality of the waters of the State, other than into a community sewer system, file with the Water Board a ROWD containing such information and data as may be required by the Water Board, unless the Water Board waives such requirement pursuant to CWC section 13269.

22. CWC section 13263 (i) authorizes the Water Board to prescribe general WDRs for a category of discharges if the discharges are produced by the same or similar operations; involve the same or similar types of waste; require the same or similar treatment standards; and are more appropriately regulated under general WDRs. The WDRs must implement relevant water quality control plans and take into consideration, among other things, the beneficial uses of water to be protected, the water quality objectives reasonably required for that purpose, and the need to prevent nuisance.

23. It is appropriate to issue general WDRs that apply to Vineyard Properties in the Napa River and the Sonoma Creek watersheds because:

    a. Vineyard Properties in these two watersheds have similar development and management practices, and consequently they have similar pollutant discharges;

    b. Vineyard Properties in these two watersheds pose similar threats to water quality, requiring the same or similar treatment standards, pollutant control, and monitoring programs; and

    c. Given the time and resources needed for regulatory oversight, most Vineyard Properties in these two watersheds are more appropriately regulated under general WDRs rather than individual WDRs.

24. Pursuant to this Order and CWC section 13267, Dischargers must implement a Monitoring and Reporting Program as specified in Attachment E. The burden, including costs, of the Monitoring and Reporting Program bears a reasonable relationship to the need for the Program and the benefits to be obtained from it. Specifically, the Monitoring and Reporting Program is necessary to ensure compliance with this Order's terms and provisions in order to protect water quality. The Program requires regular BMP implementation monitoring, BMP effectiveness monitoring, reporting regarding Farm Plan completion and progress per implementation and achievement of performance standards, and record-keeping.

25. This Order is consistent with the State Water Board's 2004 Policy for the Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy) because it regulates nonpoint source discharges that may adversely affect water quality.

Water Quality Control Plan for the San Francisco Bay Basin

26. The Basin Plan is the Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives (WQOs) for waters of the State, including surface waters and groundwater. The Region's TMDLs and associated implementation plans to achieve WQOs are also part of the Basin Plan. The Basin Plan was duly adopted by the Water Board and approved by the State Water Board, the Office of Administrative Law, and U.S. EPA. The latest version can be found on the Water Board's website at http://www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml.

27. Pursuant to the Basin Plan, the existing and potential beneficial uses of waters in the San Francisco Bay Region that could be impacted by the discharge of wastes include:

Beneficial Use	Napa River	Sonoma Creek
Agricultural Supply (AGR)	X	
Cold Freshwater Habitat (COLD)	X	X
Ocean, Commercial, and Sport Fishing (COMM)		
Estuarine Habitat (EST)		
Industrial Service Supply (IND)		
Fish Migration (MIGR)	X	X
Municipal and Domestic Supply (MUN)	X	
Navigation (NAV)	X	
Preservation of Rare and Endangered Species (RARE)	X	X
Water Contact Recreation (REC-1)	X	X
Non-contact Recreation (REC-2)	X	X
Shellfish Harvesting (SHELL)		
Fish Spawning (SPWN)	X	X
Warm Freshwater Habitat (WARM)	X	X
Wildlife Habitat (WILD)	X	X

28. The Basin Plan provides a framework for actions needed to achieve water quality objectives for sediment, settleable material and population and community ecology to address elevated concentrations of fine sediment (primarily sand) in the bed of the Napa River, Sonoma Creek and their tributaries and pervasive channel incision. These actions translate into 50 percent-or-greater reduction in human-caused sediment inputs as identified in the TMDLs.

29. In order to protect beneficial uses, this Order includes requirements to implement the Basin Plan.

Anti-Degradation

30. State Water Board Resolution 68-16 ("*Statement of Policy with Respect to Maintaining High Quality of Waters in California*") requires whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality must be maintained. Resolution 68-16 only allows change in the existing high quality if it has been demonstrated to the Water Board that the change is consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses of such water, and will not result in water quality less than that prescribed in the policies. Resolution 68-16 further requires that discharges meet WDRs which will result in the best practicable treatment or control of the discharge necessary to assure that (a) pollution or nuisance will not occur and (b) the highest water quality consistent with the maximum benefit to the people of the State will be maintained. Resolution 68-16 incorporates the federal "antidegradation" policy (Cal. Code Regs., tit. 40, § 131.12). This Order is consistent with these policies because its implementation will result in improved water quality and achievement of TMDL sediment load allocations.

31. This Order will result in the best practicable treatment or control (BPT) of discharges to prevent pollution or nuisance and the maintenance of the highest water quality consistent with the maximum benefit to the people of the State. The management practices required under the Order are BPT because they reflect the state-of-the-art methods for Vineyard Property controls that integrate soil and site management practices for pest management and weed control, nutrient management, pesticide storage, handling and modern spray techniques, vineyard and road erosion, and road runoff control. The methods have proven to be effective where implemented in vineyards and associated roads.

California Environmental Quality Act (CEQA)

32. The Water Board is the lead agency pursuant to the California Environmental Quality Act (CEQA) (Public Resources Code section 21000 *et seq*.).

33. The Water Board has satisfied its obligation to address tribal cultural resources under AB 52. The notification and consultation provisions of that statute were not applicable, because no tribes in the project area had requested notification at the time of the decision to undertake the general WDRs.

34. On July 7, 2014, the Water Board filed a Notice of Preparation (NOP) with the State Clearinghouse, which included an Initial Study to public agencies and persons with interest in the Order. Copies of the NOP and Initial Study were available for review at the Water Board's Oakland office. Additionally, the NOP and Initial Study were posted at the Water Board's webpage and an announcement of its availability was forwarded to individuals that subscribed to the electronic mailing lists relevant to information on the Order. Filing of the NOP started a 30-day comment period that closed on August 6, 2014.

35. On July 23, 2014, the Water Board conducted a CEQA scoping meeting in the Napa County Agricultural Commissioner's Office, for the Environmental Impact Report (EIR) to solicit input from agencies and interested parties on issues to be addressed in the EIR.

On July 15, 2016, the Water Board issued a draft Environmental Impact Report (DEIR) for public review and filed a Notice of Completion with the State Clearinghouse (SCH). (Cal. Code Regs., tit. 14, § 15085.) The public comment period for the DEIR (SCH No. 2014072013) was from July 15, 2016 to August 29, 2016. The Water Board received and evaluated comments on the DEIR from public agencies and the other interested parties. The Water Board has considered, certified, and approved the final EIR (FEIR) pursuant to California Code of Regulations, title 14, sections 15090 - 15092.

36. Impacts and mitigation measures identified in the EIR are included in Attachment F. Mitigation measures identified in the EIR for this Order, and required to be implemented as described in Attachment F, will substantially reduce environmental effects of the project. The mitigation measures included in this Order has eliminated or substantially lessened all significant effects on the environment, where feasible. Where noted, some of the mitigation measures are within the responsibility and jurisdiction of other public agencies. The mitigation measures discussed herein can and should be adopted, as applicable, by those other agencies. Pursuant to California Code of Regulations, title 14, sections 15091 and 15093, the Water Board makes the following Statement of Overriding Considerations in conjunction with the approval of this Order.

37. **Statement of Overriding Considerations Supporting Approval of the Order.** The Water Board has duly considered the EIR, which conservatively identifies significant and unavoidable impacts resulting from adoption and implementation of the Order. Consistent with CEQA Guidelines section 15093, subsection (a), the Water Board has considered and balanced the economic, legal, social, technological, and other benefits of this Order, including region-wide environmental benefits, against the unavoidable environmental risks. The benefits outweigh the potentially unavoidable adverse environmental effects, and that the unavoidable adverse environmental effects are acceptable because:

    - Adoption of this Order will greatly improve water quality through compliance actions to reduce sediment and storm runoff discharges from vineyards and roads, to restore properly functioning substrate conditions in freshwater channel reaches that provide critical habitat for listed populations of steelhead, locally rare Chinook salmon populations, and exceptionally diverse assemblages of native fish species.

    - Compliance with this Order will result in effective pollutant discharge control measures for pesticides and nutrients being implemented and maintained at vineyard properties throughout the Napa River and Sonoma Creek watersheds, reducing potential impacts to beneficial uses including all native aquatic and riparian species.

    - Compliance with the Order, including performance standards for storm runoff from Hillslope Vineyards[5] and roads, will significantly reduce storm runoff, and therefore, also contribute to a significant enhancement of groundwater recharge.

[5] A "Hillslope Vineyard" is defined by grapes planted on an average slope > 5 percent. The method for determining slope is as specified by Napa County: file:///C:/Users/mnapolitano/Downloads/1On%20Line%20ECP%20(1).pdf. An "existing" Hillslope Vineyard is one that was planted prior to adoption of this Order.

- Compliance with the Order would significantly reduce operational GHG emissions through decreases in tillage and increases in cover crops at vineyards, substantial reductions in soil erosion throughout vineyard properties (including extensive networks of property access roads), and increases in riparian vegetation resulting from the implementation of soil biotechnical projects.

- Implementation of BMPs would enhance agricultural productivity through increases in soil organic matter, enhanced soil infiltration capacity, and a reduction in soil erosion both within and adjacent to farm areas.

After balancing the above benefits of the Order against its unavoidable environmental risks, the benefits of the Order outweigh the unavoidable adverse environmental effects, and these adverse environmental effects are considered "acceptable."

38. In accordance with Title 14 of the California Code of Regulations, section 15094, the Water Board will file a Notice of Determination with the State Clearinghouse, along with payment of applicable fees as required by the Department of Fish and Wildlife (https://www.wildlife.ca.gov/Conservation/CEQA/Fees) within five working days from the issuance of the Order.

Annual Fees

39. Water Code section 13260 authorizes the Water Board to include as a condition of general WDRs the payment of an annual fee. The Discharger shall pay an annual fee to the State Water Board in accordance with the fee schedule for each fiscal year. (Cal. Code Regs., tit. 23, § 2200).

Third-Party Programs

40. The NPS Policy encourages the Water Boards to "be as creative and efficient as possible in devising approaches to prevent or control nonpoint source pollution." This includes development of third-party programs, including coalitions of dischargers in cooperation with a third-party representative, organization, or government agency to assist the dischargers in complying with the requirements and assure the Water Board and the public that actions have been taken to reduce nonpoint source pollution.

41. The Water Board supports the use of third-party programs that have been approved by the Executive Officer to assist Dischargers in filing required forms, and to provide technical assistance to Dischargers in preparing Farm Plans, implementing non-point source pollutant control projects, and/or to assist Dischargers with the monitoring and reporting requirements described in Attachment E. Third-party programs may also opt to collect fees on behalf of its members.

42. Attachment C explains the roles, responsibilities, and prerequisite qualifications of third-party programs, and provides guidance on the types of information needed for Third-Party Program approval.

43. The Water Board will review a third-party program's performance to ensure that adequate Farm Plans are being consistently prepared by Dischargers subject to this Order and that all monitoring and reporting requirements are being met.

Safe Drinking Water Act

44. It is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by requiring Dischargers to meet water quality objectives, as applicable, designed to protect human health and ensure that water is safe for domestic uses.

California Endangered Species Act

45. This Order does not allow for the take, or incidental take, of any special status species. The applicant shall use the appropriate protocols, as approved by the California Department of Fish and Wildlife and/or the U.S. Fish and Wildlife Service, to ensure that activities do not impact the beneficial use of the Preservation of Rare and Endangered Species.

Public Notice

46. The Water Board has notified Dischargers, interested agencies, and the public of its intent to adopt this Order and has provided them the opportunity to attend a public meeting and to submit their written comments.

47. The Water Board, in a public meeting, heard and considered all comments pertaining to this matter.

IT IS HEREBY ORDERED that in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, all Dischargers of Vineyard Properties that meet the criteria described in the above findings shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. The discharge of waste to waters of the State other than as defined in this Order is prohibited.

2. The discharge of hazardous waste, as defined in CWC section 13173 and Title 23 CCR section 2521(a), respectively, is prohibited.

3. The discharge of wastes (e.g., fertilizers, fumigants, pesticides) into groundwater via backflow through a water supply well is prohibited.

4. The discharge of any wastes (e.g., fertilizers, fumigants, pesticides) down a groundwater well casing is prohibited.

B. **PERFORMANCE STANDARDS:** The Discharger shall install, maintain, and evaluate effectiveness of BMPs as needed throughout the Vineyard Property to attain the following discharge performance standards:

1. Soil erosion in the farm area: soil loss rate ≤ tolerable soil loss rate. The tolerable soil loss rate is as defined by the USDA Soil Conservation Service (1994).

2. Sediment delivery from existing unpaved roads: a) culvert inlets have a low plug potential[6]; b) critical dips shall be installed at culverted crossings that have a diversion potential; and c) ≤ 25 percent of the total length of unpaved roads are hydrologically connected[7].

3. Sediment delivery from new roads: all new roads (unpaved and/or paved) shall be storm-proofed roads (as specified in Attachment A).

4. Storm runoff from an existing Hillslope Vineyard[8]: shall not cause or contribute to downstream increases in bed and/or bank erosion (as specified in Attachment A).

5. Storm runoff from a new Hillslope Vineyard[9]: a) peak storm runoff in 2-, 10-, 50-, and 100-year (24-hour duration) rainfall events following vineyard development shall not be

[6] Trash barriers or deflectors are installed where needed. For additional guidance, please see Weaver et al. (2014), "Culvert Inlet and Outlet Treatments", pp. 137-143.

[7] Hydrologic connectivity refers to the length or proportion of a road that drains runoff directly to streams or other water bodies. Any road segment that has a continuous surface flow path to a natural stream channel during a storm runoff event is termed a hydrologically connected road or road reach. Connectivity usually occurs through road ditches, road surfaces, gullies, or other drainage structures or disturbed surfaces.

[8] A "Hillslope Vineyard" is defined by an area where grapes are planted on an average slope > 5 percent.

[9] A "new vineyard" is any vineyard that is 5 acres or more in size that is established subsequent to adoption of this Order.

greater than pre-development peak storm runoff[10]; and b) shall not cause or contribute to downstream increases in bed and/or bank erosion (as specified in Attachment A).

6. Pesticide management: an integrated pest management program shall be developed and implemented for the vineyard (UC Statewide IPM Program, 2016), and effective practices implemented to avoid mixing, storage, or application of pesticides near wells and surface waters, or in ways that could contribute to receiving water toxicity.

7. Nutrient management: best management practices to guide nutrient applications (e.g., fertigation, cover crops, soil amendments, plant and/or soil testing) shall be implemented such that discharges do not contribute to violation of water quality standards.

C. PROVISIONS

1. Time Schedule for Achievement of Performance Standards

a. Existing Vineyard Property: Performance standards for soil erosion in the Farm Area, pesticide management and nutrient management must be achieved within three years of adoption of the Order. The Performance standard for storm runoff from Hillslope Vineyards – as related to bed and bank erosion - must be attained within six years of adoption of this Order. The performance standards for sediment and storm runoff discharges from existing unpaved roads must be achieved within ten years of adoption of this Order.

b. New Vineyard Property: Performance standards for soil erosion in the Farm Area, pesticide management and nutrient management must be achieved by the date of vineyard construction. The performance standard for storm runoff from new Hillslope Vineyards –as related to peak storm runoff change - must be achieved by the date of vineyard construction. The performance standard for storm runoff – as related to bed and bank erosion – must be achieved within six years of vineyard construction. The performance standards for sediment discharge and storm runoff from existing unpaved roads must be achieved within ten years of construction of the new vineyard.

c. All Vineyard Properties: where a new road – paved or unpaved - is constructed following adoption of this Order, at the time of construction, the new road must achieve all applicable performance standards for storm-proofed roads (as specified in Attachment A).

2. Monitoring and Reporting

a. Discharger shall conduct monitoring and site inspections of the entire Vineyard Property to document that discharge control actions implemented consistent with the Farm Plan are in-place and functioning properly such that the performance standards in B.1 through B.7 are being met.

[10] Attainment of this performance standard shall be evaluated through site-specific hydrologic modeling and subsequent to development, group or site-specific BMP effectiveness monitoring (see Attachment E). In modeling runoff change, deep ripping of soils cannot be credited for a reduction in peak runoff.

b. Representative photo-points shall be established and monitored to document winter readiness, demonstrate annual maintenance practices and BMP implementation, and to document habitat and water quality conditions in receiving waters at and/or near points of discharge from the vineyard, as specified in Attachment E.

c. Site readiness inspections shall be completed annually, prior to the beginning of the rainy season and shall encompass the farm area and property access roads to ensure the facility's readiness for the rainy season. Vineyard Property inspections shall be conducted periodically throughout the rainy season and after storm events to confirm that management practices have functioned as designed, and to determine if additional management measures are required.

d. Required reporting is as specified in Attachment E. Tier 2 and Tier 3 discharges also must conduct BMP effectiveness monitoring as specified in Attachment E. The Executive Officer may modify Attachment E, as necessary or appropriate. Public Notice of the modification of Attachment E would be provided, and revised requirements would be posted on the Water Board website.

e. This Order does not require a Discharger to perform inspections or take other implementation actions during dangerous weather conditions or when a storm begins after scheduled facility operating hours or when there is heavy flooding.

f. The Discharger shall maintain records of inspections, monitoring observations, and any responses taken to reduce potential sources of pollutants from the Vineyard Property. These records shall be maintained at the same location as the Farm Plan. If excessive rates of erosion are observed during the inspection, the Discharger shall record the source and cause of erosion (based on available information), note the management practices taken to correct it, and report it in the Annual Reporting Form.

3. CEQA Required Mitigation

Mitigation measures identified in the EIR for this Order shall be implemented as described in Attachment F (CEQA Mitigation Measures).

D. ENFORCEMENT

1. The Discharger shall comply with all of the conditions of this Order. Any noncompliance with this Order constitutes grounds for an enforcement actions, and/or termination of enrollment.

2. CWC section 13387(e) of the provides that any person who knowingly makes any false statement, representation, or certification in any record, report, plan, notice to comply, or other document filed with a regional water board or the State Water Board, or who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required under this division shall be punished by a fine of not more than $25,000, or by imprisonment in state prison for not more than two years, or by both.

E. PERMIT REOPENING, REVISIONS, REVOCATION, TERMINATION AND REISSUANCE

1. The Water Board may modify or revoke and reissue this Order at any time.

2. An authorization to discharge wastes under this Order is not transferable to any person. In the event of any change in operation, control or ownership of land or waste discharge facilities, the Discharger shall notify any succeeding owner/operator of its responsibility to enroll under this Order by letter at least 30 days in advance of such change of ownership. A copy of such letter shall be submitted to the Water Board, along with a Notice of Termination (NOT), Attachment D, in order for the original Discharger to be relieved of its responsibility to comply with this Order.

3. To enroll under this Order, the succeeding owner/operator must submit a completed Notice of Intent to the Water Board within 15 days of receipt of the letter referenced in E.2, and request approval from the Executive Officer to discharge under this Order. The succeeding owner/operator is not authorized to discharge under the Order and may be subject to enforcement until written approval of the coverage transfer from the Executive Officer.

4. In the event of closure or change in land use of the Discharger's facility, the Discharger shall file an NOT (see Attachment D) that explains the extent of the change in operation, measures taken to close and/or change the operation, and owner/operator contact information.

5. Water Board staff shall review the NOT and determine its appropriateness. The review may include a field staff inspection to verify project completion and water quality protection. The Executive Officer shall notify the Discharger regarding approval or disapproval of the NOT.

6. This Order may be reopened to address any changes in State or federal plans, policies, or regulations that would affect the quality requirements for the discharges and as authorized by federal and State law.

7. The Executive Officer may, at any time, terminate coverage under this Order as to a particular Discharger where the Discharger fails to comply with this Order; such termination is in the public interest; the activities could adversely affect beneficial uses of waters of the State; or the Executive Officer determines, based on changes to the Discharger's facility, that coverage under individual WDRs is more appropriate.

8. If an owner or operator of a Vineyard Property can demonstrate that the Vineyard Property does not discharge to surface waters of the State, and that existing and anticipated uses of waters of the State are fully protected from Vineyard Property operations, the owner or operator may request an exemption from this Order.

The request shall be made in writing and will be subject to Water Board verification and Executive Officer approval. If future conditions or Vineyard Property operations change, or the potential for water quality impacts is found, the owner or operator of the Vineyard Property may need to obtain coverage under this Order, or in certain circumstances, individual WDRs.

F. REQUIRED REPORTS AND NOTICES

The Discharger must complete the following tasks in accordance with the time schedule required to achieve the performance standards.

1. **Farm Water Quality Protection Plan**

   a. The Farm Water Quality Protection Plan (Farm Plan) must include a comprehensive inventory of vineyards, roads, reservoirs, and waterways located throughout the Vineyard Property to document the BMPs already in-place and/or to prescribe additional BMPs that shall be implemented and maintained to comply with all conditions of this order, including but not limited to, attainment of all applicable performance standards for discharge, and also to document the actions implemented to protect and/or enhance stream-riparian habitat complexity and connectivity. The Farm Plan also must include a specific time schedule and corresponding milestones to measure progress toward attainment of the performance standards, and a monitoring plan to document BMP implementation and assess effectiveness.

   b. For all existing Vineyard Properties, the Farm Plan must be completed and certified consistent with the requirements in Attachment A, **within 3 years following adoption of this Order**. At a new Vineyard Property, the Farm Plan shall completed and certified consistent with the requirements in Attachment A, **by the date of completion of vineyard construction or within 3 years following adoption of this Order, whichever date is later**.

2. **Annual Report**

   a. The Discharger shall submit an Annual Compliance Form to the Water Board. The Annual Compliance Form shall certify that the facility meets the conditions of this Order and that the Farm Plan is being implemented according to the schedule established in the Farm Plan. A sample Annual Compliance Reporting Form is included in Attachment E (Table E-1).

   b. Annual Reporting Forms shall be submitted electronically each year no later than October 15th.

G. APPLICATION REQUIREMENTS

1. In order to obtain coverage under this Order, the Discharger shall apply for coverage by submitting an electronic Notice of Intent form (NOI) for an **existing Vineyard Property within one year of the date of adoption of this Order**. **For a new Vineyard Property**, that is one where a vineyard ≥ 5 acres is developed following adoption of the Order, the Discharger shall apply for coverage by submitting an electronic Notice of Intent form

(NOI), as specified above, **one year prior to construction of the new vineyard or within one year of adoption of this Order, whichever date is later**. A web-based electronic enrollment form shall be developed and activated following adoption of this Order.

2. If the Discharger becomes aware that a relevant fact was omitted in a Notice of Intent, or incorrect information was submitted in a Notice of Intent or in any report to the Water Board, it shall promptly submit the correct facts or information. Completed forms shall be sent to the Water Board at the following address:

   San Francisco Bay Regional Water Board
   ATTN: Vineyard Program
   1515 Clay Street, Suite 1400
   Oakland, CA 94612

3. Coverage under this Order is subject to fees as determined by the State Water Board. The annual fee schedule is developed by the State Water Board. The Discharger shall pay all required annual fees either directly to the State Water Board or through established discharger groups.

4. Any fee reduction established by State Water Board for group reporting shall only be applicable to those Dischargers reporting through Executive Officer-approved Third-Party Program.

*I, BRUCE H. WOLFE Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on **DATE**, 2016.*

_____
BRUCE H. WOLFE
Executive Officer

Attachment A – Farm Plan Requirements
Attachment B – Notice of Intent Form
Attachment C –Third-Party Program Roles, Responsibilities and Approval Process
Attachment D – Notice of Termination
Attachment E – Monitoring and Reporting
Attachment F – CEQA Mitigation Measures
Attachment G - Glossary

ATTACHMENT A

California Regional Water Quality Control Board
San Francisco Bay Region

General Waste Discharge Requirements
Order No. R2-2016-00XX

Farm Plan Requirements

Introduction

This Order requires Dischargers to prepare and implement a Farm Plan[1] that controls sediment discharges and storm runoff increases from vineyards and roads, and also controls pesticide and nutrient discharges from vineyards, as needed to attain the performance standards described in this attachment. Once the Farm Plan has been Certified[2] by an approved Third-Party Program, an approved Qualified Professional[3], and/or by Water Board staff, a copy of the Farm Plan shall be kept at the Vineyard Property and be available for review by Water Board staff upon request. The process for approval of a Third-Party Program and/or a Qualified Professional is as specified in Attachment C to this Order. Except in cases of an unauthorized discharge or emergency circumstances, Water Board staff will typically provide Dischargers a minimum of 72 hours advance notice prior to inspection. Only Water Board staff, or other individuals authorized by the Discharger will inspect the Vineyard Property.

1. Approach and Scope

The Farm Plan shall be based on an inventory of the vineyards, roads, reservoirs, and waterways located throughout the Vineyard Property[4] to document the conservation practices already in-place, and/or to prescribe additional best management practices (BMPs) that will be implemented and maintained to comply with all conditions of this Order. As follows "existing" (e.g., Vineyard Property, vineyard, road) means the feature is in-place prior to adoption of this Order, and "new" refers to the feature being constructed subsequent to adoption.

2. Base Map

The base map for the Farm Plan shall include the entire Vineyard Property and may be an aerial photograph, topographic map, LiDAR derived shaded relief map, Google Earth image, or

[1] The "Farm Plan" documents natural features, developed areas, and best management practices (BMPs) implemented to achieve applicable performance standards for discharge. Its scope and contents are as defined herein.

[2] "Certified" is defined as the Farm Plan being complete, and upon its full implementation that the Vineyard Property would achieve all applicable performance standards for discharge.

[3] A "Qualified Professional" is defined to include a California registered professional in a discipline associated with erosion and sediment control (e.g., professional engineer, licensed geologist, or certified professional in erosion and sediment control).

[4] A "Vineyard Property" is defined by a parcel or contiguous parcels under the same ownership, where grapevines are planted on part of the property.

equivalent that depicts features at 1:6000 or larger scale (a 1:2400 scale base map is recommended so that smaller features including stream channels, riparian corridors, vineyard drainage structures, reservoirs, roads, etc. can be discerned and delineated accurately). Topography shall be delineated to distinguish the land areas where the average ground surface slope is < 5 percent, 5-to-30 percent, and those areas > 30 percent, and also shall include 5-to-40 foot (consistent with US Geological Survey 7.5 minute quadrangle conventions), or higher resolution contour intervals.

The Vineyard Property base map(s) shall delineate the following:

- Property boundaries;
- Parcel boundaries and identifiers (APN numbers);
- Geomorphic terrane units (see Water Board, 2009, pp. 19-21) and/or soil series (with series identifier and erosion potential rating);
- Boundaries of vineyard blocks (showing row direction, slope, and block ID);
- Engineered drainage structures (e.g., subsurface drainage systems, underground outlets, diversion ditches, lined waterways or outlets, etc.);
- Vineyard avenues;
- Non-vineyard land uses (grazing areas; winery area, etc.);
- Farm buildings, agrichemical handling and mixing sites, agrichemical storage facilities, and equipment yards and/or staging areas;
- All channels including Class I, II, and III, and also human-made waterways/ditches;
- Water wells and streamflow diversion structures;
- Springs and seeps;
- Reservoirs, ponds, and lakes;
- All roads and road crossings, with road surface type (paved or unpaved) and crossing type (culvert, bridge, ford, etc.) also delineated; and
- Known active or potentially active landslides[5], soils with high erosion hazards, and known active or potentially active gullies.

[5] Mapped landslides and/or areas with a high potential for future landsliding may be identified based on field observations, aerial photo interpretation, and/or review of published information including: California Geological Survey (2016), US Geological Survey (1997a), and US Geological Survey (1997b). Also, a Debris Flow Potential Map developed for the Water Board by UC Berkeley is available upon request.

3. Performance Standards for Discharge.

BMPs shall be installed and maintained as needed throughout the Vineyard Property to achieve the following performance standards:

a) Soil erosion in the Farm Area[6]: soil loss rate ≤ tolerable soil loss rate. The tolerable soil loss rate is as defined by the USDA Soil Conservation Service (1994).

b) Sediment delivery from existing unpaved roads: a) culvert inlets have a low plug potential[7]; b) critical dips shall be installed at culverted crossings that have a diversion potential; and c) ≤ 25 percent of the total length of unpaved roads are hydrologically connected[8].

c) Sediment delivery from new roads: all new roads (unpaved and/or paved) shall be storm-proofed roads (see below, **Storm-Proofed Roads**).

d) Storm Runoff from an existing Hillslope Vineyard[9]: shall not cause or contribute to downstream increases in bed and/or bank erosion (see below, **Bed and Bank Erosion**).

e) Storm runoff from a new Hillslope Vineyard: a) peak storm runoff[10] in 2-, 10-, 50-, and 100-year (24-hour duration) rainfall events following vineyard development shall not be greater than pre-development peak storm runoff[11]; and b) shall not cause or contribute to downstream increases in bed and/or bank erosion (see below, **Bed and Bank Erosion**).

f) Pesticide management: An integrated pest management program shall be developed and implemented for the vineyard (UC Statewide IPM Program, 2015), and effective practices shall be implemented to avoid mixing, storage, or application of pesticides near wells and surface waters, or in ways that could contribute to receiving water toxicity.

---

[6] The Farm Area at a minimum includes all vineyard blocks, lanes, and avenues. Vineyard lanes and avenues are the field roads along the edges and/or in between the vineyard blocks.

[7] Trash barriers or deflectors are installed where needed. For additional guidance, please see Weaver et al. (2014), "Culvert Inlet and Outlet Treatments", pp. 137-143.

[8] Hydrologic connectivity refers to the length or proportion of a road that drains runoff directly to streams or other water bodies. Any road segment that has a continuous surface flow path to a natural stream channel during a storm runoff event is termed a hydrologically connected road or road reach. Connectivity usually occurs through road ditches, road surfaces, gullies, or other drainage structures or disturbed surfaces.

[9] A "Hillslope Vineyard" is defined by grapes planted on an average slope > 5 percent. The method for determining slope is as specified by Napa County: file:///C:/Users/mnapolitano/Downloads/1On%20Line%20ECP%20(1).pdf. An "existing" Hillslope Vineyard is one that was planted prior to adoption of this Order.

[10] Peak runoff is defined as the instantaneous maximum value for discharge during a storm runoff event.

[11] Attainment of this performance standard shall be evaluated prior to vineyard development through site-specific hydrologic modeling and subsequent to development by group or site-specific BMP effectiveness monitoring of soil infiltration capacity, as specified in Attachment E. In modeling runoff, ripping of soils shall not be inferred to result in a long-term increase soil infiltration capacity, and Hydrologic Soil Group Classification shall not be modified.

g) Nutrient management: Best management practices to guide nutrient applications (e.g., fertigation, cover crops, soil amendments, plant and/or soil testing) shall be implemented as needed to protect water quality.

Storm-Proofed Roads (as defined by Weaver et al., 2014) shall meet the following specifications (as applicable):

- Stream crossings have a drainage structure designed for the 100-year flood flow including woody debris and sediment (Cafferata et al, 2004).
- Stream crossings do not have diversion potential.
- Culvert inlets have a low plug potential (trash barriers or deflectors are installed where needed).
- Culverts are installed at the base of the fill and in line with the natural channel.
- Emergency overflow culverts that emerge higher in the fill have full round, anchored downspouts that extend to the natural channel.
- Deep fills (deeper than a backhoe can reach from the roadbed) with undersized culverts or culverts with high plugging potential are fitted with an emergency overflow culvert.
- Bridges have stable, non-eroding abutments and do not significantly restrict 100-year flood flow.
- Stream crossing fills are stable.
- Approaching road surfaces and ditches are "disconnected" from streams and stream crossing culverts to the maximum extent feasible using road shaping and road drainage structures.
- Class I (fish-bearing) stream crossings meet State Fish and Wildlife and National Marine Fisheries Service fish passage criteria.
- Road surfaces and ditches are hydrologically "disconnected" from streams and stream crossing culverts. Road surface runoff is dispersed, rather than collected and concentrated.
- Ditches are drained frequently by functional ditch relief culverts and/or rolling dips.
- Outflow from ditch relief culverts does not discharge to streams.
- Ditches and road surfaces drainage does not discharge (through culverts and/or rolling dips) onto active or potential landslides, and/or into gullies.
- Fine sediment contributions from roads, cutbanks, and ditches are minimized by utilizing seasonal closures and installing a variety of surface drainage techniques including road surface shaping (outsloping, insloping or crowning), rolling dips, ditch relief culverts, water bars and other measures to disperse road surface runoff and reduce or eliminate sediment delivery to the stream.

Bed and Bank Erosion: the performance standard for bed and bank erosion downslope of a Hillslope Vineyard is evaluated and achieved as follows:

1. Review available information including: property land-use and natural disturbance history; vineyard design and management practices; natural and engineered drainage features; and soil, geology, landslide, and topographic maps.

2. Conduct a field survey[12] to evaluate and document channel condition, beginning at the point(s) of discharge from the Hillslope Vineyard along overland flow pathways and/or into the receiving channel(s), downstream to the first response reach (e.g., gravel-bedded channel reach with a slope ≤ 0.02), and/or to the property boundary (whichever is encountered first).

As technically and economically feasible, at sites where a Hillslope Vineyard discharges into an Unstable Area,[13] as a precaution the Discharger shall implement additional BMPs to attenuate Vineyard Property storm runoff. For example, these BMPs may include establishment of no-till cover crops, application of composted mulch, soil amendments to increase organic matter content (e.g., crop residues, manure, and/or compost), installation of level-spreaders, disconnecting existing drainage pipe systems, and/or construction of detention basins. Also, as technically and economically feasible, the Discharger shall implement soil bioengineering projects to control erosion in actively eroding gullies and landslides, and also in channel reaches that are down-cutting and/or head-cutting. Example soil bioengineering projects are described in in Marin Resource Conservation District (2007).

4. Required Elements of the Farm Plan

The Farm Plan shall include all of the following elements:

a) Base map(s) (as specified above);

b) Conservation practices to control discharges of agrichemicals;

c) Conservation practices to control Farm Area sediment discharge and to attenuate peak runoff;

d) Conservation practices to reduce sediment discharge and attenuate peak runoff associated with property access roads;

e) Conservation practices to protect and/or enhance stream-riparian habitat complexity and connectivity;

f) Water quality controls for reservoirs that receive recycled wastewater, and which may discharge to surface waters of the State (as applicable); and

g) Photo point monitoring.

Where the deadline for the achievement a performance standard is later than the date of completion of the Farm Plan (Table 1), the Farm Plan shall include a time schedule for achievement of the performance standard, and milestones to gauge incremental progress.

[12] At a minimum, the field survey shall be conducted once every five years, and also following a 5-year or greater recurrence interval peak discharge, that is ≥ 10,000 cfs at the Napa River near St. Helena gage.

[13] Unstable areas include down-cutting and/or head-cutting stream channels, gullies, and/or landslides.

Agrichemical controls

The Farm Plan shall describe the BMPs that are in-place and those that will be implemented to control discharges of agrichemicals including all nutrients and pesticides. This element of the Farm Plan shall describe practices for safe storage, mixing, and loading of agrichemicals, and/or to protect against discharges to surface and groundwater that could contribute to a violation of water quality standards. Specifically this element of the Farm Plan shall be developed and implemented to attain the performance standards for pesticide management and nutrient management as specified above. Performance standards for nutrient management and pesticide management must be achieved by the date of completion of the Farm Plan, which for an existing Vineyard Property is within three years of adoption of this Order, and for a new Vineyard Property, is within three years of adoption of this order or by the completion of vineyard construction (whichever date is later)[14].

Farm Area sediment discharge and peak runoff controls

The Farm Plan shall describe the BMPs that are in-place and those that will be implemented within the Farm Area, which includes at a minimum the vineyard blocks and avenues, to control sediment delivery to stream channels and to attenuate peak storm runoff. Specifically this element of the Farm Plan shall be developed and implemented to attain the performance standards for vineyard soil erosion, and as applicable, for storm runoff from a Hillslope Vineyard (as specified above).

The performance standards for vineyard soil erosion must be achieved by the date of completion of the Farm Plan, which for an existing Vineyard Property is within three years of adoption of this Order, and for a new Vineyard Property, by the completion of construction of the new vineyard.

The performance standards for storm runoff from a Hillslope Vineyard - as related to bed and bank erosion - must be achieved: a) at an existing Hillslope Vineyard, within six years of adoption of this Order; and b) at a new Hillslope Vineyard, within six years of the completion of vineyard construction.

At a new Hillslope Vineyard, in addition to required monitoring and reporting (specified in Attachment E), achievement of the performance standard for peak runoff shall be evaluated through site-specific hydrologic modeling, and the Hydrologic Model shall be appended to the Farm Plan. In preparing the hydrologic model, ripping of soils may not be inferred to result in an improvement with regard to infiltration capacity.

Road sediment discharge and peak runoff controls

The Farm Plan shall describe the BMPs that are in-place and those that will be implemented throughout the Vineyard Property to control sediment delivery to stream channels and attenuate storm runoff peak from existing unpaved roads, and also from all new roads including unpaved and paved roads. Specifically this element of the Farm Plan shall be developed and implemented to attain the performance standards for existing unpaved roads including those for percent road

[14] Whichever date is later is specified to allow new vineyards constructed in the year following permit adoption sufficient time to achieve compliance.

length that is hydrologically connected, plug potential, stream diversion potential, and also for storm-proofing of all new roads (as specified above). At an existing Vineyard Property, road-related performance standards for existing unpaved roads must be achieved within ten years of adoption of this order. At a new Vineyard Property, road-related performance standards for existing unpaved roads must be achieved within ten years of completion of construction of the vineyard. All new roads must be storm-proofed by the completion of construction.

Stream-Riparian Habitat Protection and Enhancement Actions

The entire stream network including swales, ephemeral channel reaches, intermittent channel reaches, and perennial channel reaches shall be delineated throughout the Vineyard Property. All channel reaches shall be classified and delineated as confined, moderately confined (alluvial), and unconfined (alluvial).

Channel condition within alluvial channel reaches (e.g., those that are moderately confined or unconfined) shall be assessed to describe the active channel including:

- Active channel width,
- Bars, pools, and riffles,
- Large woody debris,
- Summer baseflow,
- Flood levels,
- Bank heights,
- Bank erosion areas,
- Riparian corridor width and proximity to the Farm Area,
- Description of the vegetation types and sizes within the riparian corridor including the extent of non-native/invasive species,
- Observations of fish and wildlife,
- Locations of roads, on- or off-channel reservoirs, and/or other features upstream or downstream (e.g., grade control structures, bank stabilization structures, road crossings, etc.) that may affect bed and bank erosion locally or at reach scale, and
- Description of the management regime for the channel and/or corridor management.

An example of an acceptable approach, with regard to level of detail[15] is as described in Sonoma County RCD et al. (2016).

[15] Please note that LandSmart is revising the Farm Plan Template (Version 3.0) to include information regarding summer baseflow, and also flood levels.

Fully Protected Stream-Riparian Corridors[16]

Where a Vineyard Property has:

a) Established and maintained stream setbacks[17], as measured from the top of bank, along all unconfined alluvial channels that are on average ≥ 1.5 times then bankfull width (see Table 2 for calculation of setback width as a function of watershed area); and/or

b) Has implemented active and/or passive restoration measures through participation in a reach-based habitat enhancement project, including the Rutherford Napa River Restoration, the Oakville to Oak Knoll Napa River Restoration, the Carneros Creek Adaptive Management Plan, and/or any other reach or tributary scale stewardship plan, that has been reviewed and approved by the Water Board, the setbacks established under these plans are considered sufficient for the Vineyard Property to be considered to have Fully Protected Stream-Riparian Corridors.

Vineyard Properties with a Certified Farm Plan that is fully implemented and that have established Fully Protected Stream-Riparian Corridors are eligible for enrollment under Tier 1 of this Order[18].

Water quality controls for reservoirs that receive recycled wastewater, and which may discharge to surface waters of the State[19] (only as applicable)

The Farm Plan shall describe the BMPs that are in-place and/or that will be implemented to protect water quality in downstream water bodies as related to operation and maintenance of reservoirs that receive recycled water, and which may discharge to surface waters of the State. This element shall detail operation and maintenance activities of these reservoirs, design overflow conditions, and the drainage location(s) during overflow and/or maintenance. The Discharger shall consider the timing, magnitude, and duration of water released from these reservoir(s) to downstream waterbodies including minimizing the discharge of recycled water. The Discharger shall implement erosion and sediment control BMPs to prevent potential erosion impacts to creeks at the point of discharge and downstream of the discharge. The discharger shall take measures to minimize impacts on downstream riparian areas including as applicable eradicating non-native species in downstream riparian areas within the Vineyard Property, augmenting gravel and wood supply to downstream channel reaches, and/or riparian habitat enhancement. The Farm Plan also shall include appended Water Rights permits or licenses that apply to the reservoir and describe management measures and reporting measures to ensure

[16] Dischargers that achieve this performance standard (as applicable) are eligible to enroll under Tier 1. Vineyard Properties that do not include unconfined alluvial channels, also can qualify for enrollment under Tier 1 upon full implementation of a Certified Farm Plan.

[17] No vineyard avenues, roads, pipelines, pumps, or vineyard rows can be maintained within the setback, which is measured perpendicular to the channel beginning at the top of the bank.

[18] Benefits of enrollment in Tier 1 include exemption from the requirement to perform BMP effectiveness monitoring (as specified in Attachment E), reduced reporting requirements, and also being formally recognized by the Water Board as a Water Quality Steward.

[19] These include reservoirs constructed on-channel, and/or off-channel reservoirs that include spillways where subsequent to overflow there would be a discharge to surface waters of the State.

compliance with any bypass requirements and ensure net environment benefit associated with the use and storage of recycled water.

Photo point monitoring

The Farm Plan shall include photo point monitoring data as specified in Attachment E (Monitoring and Reporting).

Time Schedule for Farm Plan Completion

For all existing Vineyard Properties, the Farm Plan shall be completed and certified within three years of adoption of this Order. For all new Vineyard Properties, the Farm Plan shall be completed and certified by the date of the completion of vineyard construction or within three years of adoption of this Order, whichever date is later. Thereafter, the Farm Plan shall be kept at the Vineyard Property and be available for review by Water Board staff upon request.

If a Discharger elects to develop and implement Farm Plan independently, that is without the Farm Plan being certified by an approved Third-Party Program or an approved Qualified Professional, the Farm Plan must be submitted to the Executive Officer to confirm compliance with all conditions specified herein. In this case, the time schedule for submittal at an existing vineyard property is within two years of adoption of this Order, and at a new Vineyard Property is within one year prior of the projected date for the initiation of vineyard construction.

References

Cafferata, P., T. Spittler, M. Wopat, G. Bundros, and S. Flanagan, 2004. Designing Watercourse Crossings for Passage of 100-Year Flood Flows, Wood, and Sediment. California Department of Forestry and Fire Protection: Sacramento, CA. http://calfire.ca.gov/resource_mgt/downloads/reports/ForestryReport1.pdf

California Geological Survey, 2016. Information Warehouse for Landslides: http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=landslides.

Marin Resource Conservation District, 2007. Groundwork, a Handbook for Small Scale Erosion Control in Coastal California. Second Edition. Marin County RCD: Point Reyes Station, CA. http://www.marincounty.org/~/media/files/departments/pw/mcstoppp/residents/groundwork.pdf

Sonoma County RCD et al. (2016). LandSmart for Vineyards Farm Plan (Version 3.0), Managing Natural Waterways, Ditches, and Spillways, pp. 27-32. http://landsmart.org/wp-content/uploads/2016/05/LandSmart_Vineyards_TemplateV3.pdf

UC Statewide IPM Program, 2015. UC IPM Pest Management Guidelines: Grape. University of California at Davis, Department of Agriculture and Natural Resources, Statewide Integrated Pest Management Program. http://www.ipm.ucdavis.edu/PDF/PMG/pmggrape.pdf

USDA Soil Conservation Service, 1994. The Universal Soil Loss Equation (USLE), Special Applications for Napa County, California, May 1994.

US Geological Survey, 1997a. US Geological Survey Open-File Report 97-745D, Index to Detailed Maps of Landslides in the San Francisco Bay Region, California). Available at http://pubs.usgs.gov/of/1997/of97-745/of97-745d.html.

US Geological Survey, 1997b. US Geological Survey Open-File Report 97-745 E, Map of Debris Flow Source Areas in the San Francisco Bay Region, California) at http://pubs.usgs.gov/of/1997/of97-745/of97-745e.html.

Water Board, 2009. Napa River Sediment TMDL and Habitat Enhancement Plan, Staff Report. http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/napasediment/C_NS_Staff_Report_09-09.pdf

Weaver, W., E. Weppner, D. Hagans, 2014. Handbook of Forest, Ranch, and Rural Roads, A Guide for Planning, Designing, Constructing, Reconstructing, Upgrading, Maintaining, and Closing Wildland Roads. Mendocino RCD: Ukiah, CA. http://mcrcd.org/wp-content/uploads/Handbook_for_Forest_Ranch&Rural_Roads.pdf

Table 1. Summary of Deadlines for Compliance (underlined if a document must be submitted)

Existing Vineyard Property		New Vineyard Property	
Farm Plan: completed and Certified[20]	Within **three years of adoption of this Order**	**Farm Plan**: completed and Certified	By **completion of vineyard construction or** within **three years of adoption of this Order** (whichever date is later)
Performance Standards for new roads	By **completion of construction**	**Performance Standards** for new roads	By **completion of vineyard construction**
Performance Standards for Soil erosion in the Farm Area, Pesticide Management, and Nutrient Management	Within **three years of adoption of this Order**	**Performance Standards** for Soil erosion in the Farm Area, Pesticide Management, and Nutrient Management	By **completion of vineyard construction**
Performance Standards for Bed and Bank Erosion	Within **six years of adoption of this Order** (see note below)	**Performance Standards** for Bed and Bank Erosion	Within **six years of vineyard construction** (see note below)
Performance Standards for Peak Runoff	(see note below)	**Performance Standards** For Peak Runoff	Assessed via modeling By **completion of vineyard construction** (see note below)
Performance Standards for existing unpaved roads	Within **ten years of adoption of this Order**	**Performance Standards** for existing unpaved roads	Within **ten years of adoption of vineyard construction**
Performance Standards for new roads	By **completion of construction**	**Performance Standards** for new roads	By **completion of construction**

Note: The effectiveness of BMPs implemented to attain performance standards for storm runoff from Hillslope Vineyards also shall be validated via required monitoring (see Attachment E).

[20]**If a Discharger chooses to develop the Farm Plan independently, the Farm Plan must be submitted to the Water Board for review/approval**. For an existing Vineyard Property, the deadline for submittal is within two years of adoption of this Order. For a new Vineyard Property, the deadline for submittal is within two years of adoption of this Order, or one year prior to vineyard constriction, whichever date is later.

Table 2. Relationship between Bankfull Channel Width and Watershed Area (Jackson, unpublished data, as cited in CLSI, 2009)

(Bankfull Width in feet = 13.03 * [Watershed Area, mi^2]$^{0.494}$; R^2 = 0.76; N = 50 sites)

Watershed Area (mi^2)	Estimated Bankfull Channel Width (ft)
0.1	4
0.2	6
0.5	9
1	13
2	18.5
3	23
4	26
5	29
8	37
10	41
15	50
20	59
50	93
100	131

ATTACHMENT B

Notice of Intent Form

(Draft Version of Form)

GROWER REQUIREMENTS | HELP / INSTRUCTIONS

REGION 2 WATER BOARD VINEYARD PROPERTY PROGRAM - NOTICE OF INTENT - OPERATION INFO

NOTE: NAVAGATING AWAY FROM THIS FORM BEFORE CLICKING THE SAVE AND ADD THIS VINEYARD PROPERTY BUTTON. MAY CAUSE YOU TO LOSE ALL ENTERED DATA

Vineyard Property: One or more parcels (legally designated by the Napa County or Sonoma County Assessor's offices) of land, containing, in whole or in part, a vineyard where 5 acres or more are planted in grape vines by the same person or group.

Vineyard Operation: A person or group operating one or more Vineyard Properties in Napa or Sonoma counties.

Section I: Intent to Enroll Vineyard Property

Name of Operation:

Operator / Responsible Party: Operation Contact:

Business Mailing Address: City: State: Zip: ☐ ADDRESS IS A RESIDENCE

Phone Number: Fax Number: E-mail Address:

Section II: Vineyard Property Farm Plan

Has a Farm Plan been completed for this Vineyard?

Farm Plan Certified by _____
(Name of Qualified Professional or Third-Party Group or Not Applicable)

REGION 2 VINEYARD PROPERTY PROGRAM - NOTICE OF INTENT - GENERAL VINEYARD PROPERTY INFO

NOTE: NAVIGATING AWAY FROM THIS FORM BEFORE CLICKING THE ADD THIS VINEYARD PROPERTY BUTTON, MAY CAUSE YOU TO LOSE ALL ENTERED DATA

Section III: Vineyard Property Name

Vineyard Property Name:

Section IV: Vineyard Property Status

○ Actively Farming at this Vineyard Property
Date operation started farming at this vineyard property: MM/DD/YYYY

○ No Longer Farming at this Vineyard Property

Section V: Vineyard Property Location

Is this vineyard property located on one contiguous block of land? ○ YES ○ NO If YES, mark the centroid of the property. If NO, mark the largest parcel.

Vineyard Property Address / Location: City: ☐ ADDRESS IS A RESIDENCE

Provide Geographic Location of Vineyard Property

○ Mark the Vineyard Property Location on an Interactive Map

VINEYARD PROPERTY MAP(S)	UPLOAD VINEYARD PROPERTY MAP(S)
NO VINEYARD PROPERTY MAPS HAVE BEEN UPLOADED FOR THIS VINEYARD PROPERTY	

Section VI: Assessor Parcel Number(s) and Landowner(s) ADD ADDITIONAL LAND OWNER

Assessor Parcel #(s): ADD MORE PARCELS

The following individual is the : ○ Landowner ○ Trustee or Other Authorized Legal Representative of the Landowner

Name of Landowner: Contact Name:

Mailing Address: City: State: Zip:

Phone Number: Fax Number: E-mail Address:

Section VII: Vineyard Property Contact Information

Vineyard Property Contact:

Mailing Address: City: State: Zip:

Phone Number: Fax Number: E-mail Address:

Section VIII: Vineyard Property Characteristics

Total Vineyard Property Acres: ____ Total Acres Planted in Grapes: ____

A) Acreage of area planted in grapes with slope less than 5%: ____

B) Acreage of area planted in grapes with slope from 5% to 30%: ____

C) Acreage of area planted in grapes with slope greater than 30%: ____

D) Did development of all or part of the vineyard property involve a timber conversion or timber harvest plan? ○ YES ○ NO If yes, number of acres: ____

E) Reservoir(s) located on-site?: ○ YES ○ NO # of acres discharging into on-site reservoir(s): ____

# of acres planted in grapes discharging into on-site reservoir(s): ____

F) Operated under an Erosion Control Plan approved by local government agency? ○ YES ○ NO

Section IX: Waterbody Information

Is this vineyard property adjacent to a waterbody: ○ YES ○ NO If YES, provide name of waterbody: ____

Additional waterbody name: ____ Additional waterbody name: ____

Does a waterbody pass through or exist on this vineyard property?: ○ YES ○ NO If YES, provide name of waterbody: ____

Additional waterbody name: ____ Additional waterbody name: ____

Section X: Pesticide Permit Information ADD ADDITIONAL OIN / SITE ID / PERMIT HOLDER

Are pesticides applied on this Vineyard Property? ○ YES ○ NO

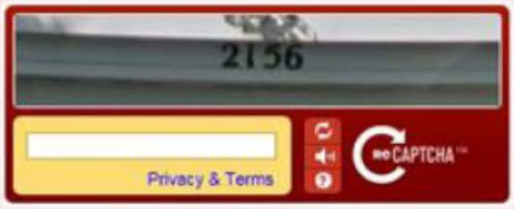
If YES, are they applied under a Department of Pesticide Regulation Permit? ○ YES ○ NO

Operator Identification Number: *(for Pesticide Applications on Vineyard Property)* ____ - ____ - ____ Site ID: ____

Name of Permit Holder: ____ Site ID: ____

SAVE and ADD THIS VINEYARD PROPERTY

ADD ADDITIONAL VINEYARD PROPERTY or Click the SUBMIT AND PRINT Button Below



After you have provided the required information regarding your operation and vineyard properties, you must fill out the reCaptcha to the left and then click the button below to submit the form to the San Francisco Bay Regional Water Quality Control Board (Water Board). You will then be prompted to print out a copy of the form, sign it, and mail it to the Water Board. Additional detailed instructions are included on the printout:

SUBMIT AND PRINT

ATTACHMENT C

California Regional Water Quality Control Board
San Francisco Bay Region

General Waste Discharge Requirements
Order No. R2-2016-00XX

Agricultural Third-Party Program and Qualified Professional Roles, Responsibilities, and Approval Process

The Water Board encourages Dischargers to work with Third-Party Programs[21] and Qualified Professionals[22] in the development and implementation of Farm Plans.

This document explains the roles, responsibilities, and prerequisite qualifications of Third-Party Programs and Qualified Professionals and provides guidance on the types of information needed for Water Board approval of Third-Party Programs and Qualified Professional technical service providers.

1. What are the roles of a Third-Party Program or Qualified Professional?

Third-Party Programs and Qualified Professionals provide technical assistance/expertise to help dischargers comply with requirements of this Order. Third-Party Programs must fulfill all of the following roles:

- Assist dischargers with development and implementation of Farm Plans as needed to achieve the performance standards in this Order;
- Verify that a Farm Plan prepared under your program, or professional oversight, is complete and that upon full implementation it will achieve all applicable performance standards for discharge, as described in this Order.

Optional roles may also include:

- Assist dischargers with the filing of Notice of Intent and/or other required paperwork;
- Assisting dischargers in securing the necessary permits for projects implemented to comply with this order;
- Assisting dischargers with BMP implementation monitoring and reporting;
- Assisting dischargers with preparation and/or submittal of annual reports;
- Assisting dischargers with applications for grants or other financial assistance;

[21] Third-Party Programs provide technical assistance/expertise to help Dischargers comply with requirements of this Order.

[22] "Qualified Professional" is defined to include a California registered professional in a discipline associated with erosion and sediment control including for example a professional engineer, licensed geologist, or certified professional in erosion and sediment control.

- Conducting BMP effectiveness monitoring; and/or
- Managing fee collection and payment to the State Water Board.

2. Who can qualify to be an approved Third-Party Program or Qualified Professional technical service provider?

At a minimum, one of the staff or consultants of a Third-Party Program must be a California registered professional in a discipline associated with erosion and sediment control (e.g., a professional engineer, licensed geologist, certified erosion control specialist, and licensed landscape architect) and be available to provide technical input and review as needed. Similarly, a Qualified Professional must be a California register professional (as described above), and demonstrate proficiency in erosion and sediment control.

To be eligible for approval, Third-Party Programs and Qualified Professionals must demonstrate that they have experience working with Vineyard Property owners and/or managers, and technical expertise and experience in developing and implementing non-point source pollution control programs. Third-Party Programs and Qualified Professionals providing technical assistance must provide objective input.

Groups and Individuals that may apply for approval

- Local public agencies
- Resource Conservation Districts
- UC Cooperative Extension
- Non-profit organizations
- Water quality coalitions or other watershed groups
- Licensed professional engineer, licensed geologist, licensed landscape architect, or certified professional in erosion and sediment control

Groups and Individuals that will not be approved

- Entities that own or operate a Vineyard Property regulated by the Water Board (except in those cases where the vineyard is operated primarily for public education, research, or demonstration purposes).
- Entities or individuals that have a conflict of interest. A conflict of interest is a situation in which financial or other personal considerations have the potential to compromise or bias professional judgment and objectivity in verifying that a Farm Plan is complete and/or upon full implementation that it would attain the performance standards for discharge (as applicable) that are contained in this Order. An individual is considered to have a financial conflict of interest if they have a financial stake/interest in the facility for which they are providing technical assistance. Entities that collect fees from program participants to sustain or administer third party technical assistance programs or assist with State Water Board fee collection are not considered to have a financial conflict of interest.

3. What is documentation is required of a Program or Individual seeking Water Board Approval?

Third-Party Programs seeking Executive Officer approval must submit the information below:

a. Provide a description of the methods that will be used to maintain records of the Dischargers/Vineyard Properties enrolled in your program, and also of the Dischargers/Vineyard Properties that have farm plans that are verified (as complete and that upon full implementation will attain performance standards for discharge).

b. Demonstrate that Farm Plan assistance materials (e.g., templates, work books, guides) were developed with input from Water Board staff, other agency staff, technical experts, and/or academics and growers who have experience and knowledge of agricultural management practices and road management to control erosion. Materials must be sufficiently comprehensive to ensure that full implementation of the Farm Plans will achieve the performance standards of this Order.

c. Describe the process (e.g., workshops/training, site visits, outreach) to be used to assist Dischargers in developing complete and accurate Farm Plans.

d. Demonstrate that the third-party program has the qualified staff, or access to contractors, who have the appropriate professional licenses or certifications, technical expertise, or academic training in disciplines associated with preparing and implementing Farm Plans.

e. Describe the process that will be used to verify that a Farm Plan is complete and that upon its full implementation will achieve the performance standards for discharge specified in this Order.

Qualified Professionals seeking Executive Officer approval, in addition to providing the information requested immediately above, also shall:

f. Submit a resume which details their professional experience;
g. Three examples of relevant project experience in erosion control; and
h. Letters of reference for the erosion control projects highlighted in their application package.

Third-Party Programs or Qualified Professionals interested in providing assistance with fee collection also must submit:

i. Group Fee Collection: Describe the process and procedures that will be used to track and manage group fee collection. If a discharger is a member of a group that has been approved by the State Board to manage fee collection and payment, there is a discounted fee assessed per acre.

4. How to request Water Board Approval?

Interested Third-Party Program or Qualified Professionals seeking Water Board approval should submit written requests that include items 3a through 3h, listed above, and/or item 3i (as applicable). The Water Board's Executive Officer will review each request and will either:

- Approve the request

- Request additional information if the application package is incomplete and additional information is needed to complete the submittal, or
- Disapprove the request if items 3s-3h cannot be adequately addressed.

Following Executive Officer approval of the request, electronic copies of the Executive Officer-approved Third-Party Program's and/or Qualified Professionals Farm Plan templates and assistance materials will be made available to the public upon request.

A request for approval must be submitted electronically to [*electronic mailbox to be provided*].

5. How will the Water Board review and evaluate Third-Party Program and Qualified Professional performance?

Water Board staff will periodically review and evaluate the performance of approved Third-Party Programs and Qualified Professionals to ensure that the program and services provided meet the requirements specified above, that any required documentation is complete, submittals for group reporting and fee collection (optional) are accurate and timely, and that adequate Farm Plans are consistently being prepared by the group's regulated entities. The Executive Officer may terminate its approval of a Third-Party Program or Qualified Professional if it is determined that the Water Board's requirements are not being met.

Nonpoint Source Policy

The State Water Board's Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program adopted on May 20, 2004 (NPS Policy) requires regulation of nonpoint source pollution in California through WDRs, WDR waiver programs, or discharge prohibitions.

The NPS Policy specifically allows for third-party groups or coalitions of dischargers to work collaboratively to improve water quality and allows the Water Board to evaluate third-party group performance. Each proposed program will be judged individually on its merits.

ATTACHMENT D

California Regional Water Quality Control Board
San Francisco Bay Region

General Waste Discharge Requirements
Order No. R2-2016-00XX

NOTICE OF TERMINATION

Signed forms must be submitted to:

San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612
ATTN: Vineyard Program

SECTION I. FACILITY OPERATOR INFORMATION

Name:		Contact E-mail:
Mailing Address:		
City:	State: CA	Zip Code:
Name of Contact Person:		Contact Phone:

SECTION II. LANDOWNER INFORMATION (IF OPERATOR IS NOT THE OWNER)

Name:		Contact E-mail:
Mailing Address:		
City:	State:	Zip Code:
Name of Contact Person:		Contact Phone:

SECTION III. FACILITY INFORMATION

A. Facility Name		County:
Mailing Address:		Contact E-mail:
City:	State: CA	Zip Code:

Name of the Contact Person for the Vineyard Property : _____ _____ _____ _____	Contact Phone: Email:
Facility County Assessor's Parcel Number	
A. Total Vineyard Property Parcel(s) Size: _____ acres B. Total area planted in grapes: _____ acres	

SECTION IV. BASIS OF TERMINATION

A. CHANGE OF VINEYARD PROPERTY OWNERSHIP or CHANGE IN CONTROL OF VINEYARD PROPERTY (check if true)

[ ] The control or ownership of this **Vineyard Property** changed on the following date: _____

The contact information for the succeeding **Vineyard Owner or Operator** is :

_____
_____
_____
_____

B. VINEYARD PROPERTY CLOSURE or CHANGE IN LAND USE

[ ] The use of the **Vineyard Property** changed and the **Vineyard Property** no longer meets the eligibility requirements of the General Waste Discharge Requirements for the following reasons

_____
_____
_____
_____
_____

as of the following date: _____

SECTION V. LANDOWNER NOTIFICATION

If the facility is leased or operated by someone other than the owner, this section must be signed by the operator.

I certify that the owner of the facility has been notified of these General Waste Discharge Requirements and that I have been designated by the owner as the "Authorized Representative."

Operator's Printed Name:_____ Signature:_____

Title: _____ Date: _____

SECTION VI. CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Owner or Authorized Representative Printed Name:_____

Owner or Authorized Representative Signature:_____ _____

Date:_____

Telephone Number:_____Email:_____

ATTACHMENT E

California Regional Water Quality Control Board
San Francisco Bay Region

General Waste Discharge Requirements
Order No. R2-2016-00XX

MONITORING AND REPORTING REQUIREMENTS

This Monitoring and Reporting Program (MRP) is issued pursuant to Order No. R2-2016-00XX (Order) and California Water Code (CWC) section 13267. The Discharger shall not implement any changes to this MRP unless, and until, a revised MRP is approved by the Executive Officer. To allow the Water Board to evaluate compliance with the terms and conditions of the Order, this MRP requires that monitoring, sampling, and record-keeping be conducted by vineyard property owners and operators (hereinafter, Dischargers).

This MRP requires preparation of an Annual Report of compliance, to be submitted to the Water Board by November 15 of each year. The Annual Report shall document pre-rainy season preparations, individual monitoring data (if not participating in a group monitoring program), compliance schedule progress, an evaluation of the effectiveness of management practices, and records of any inspections where a water quality problem was identified, as well as the management practices taken to correct these problems.

DISCHARGER TIER REQUIREMENTS

The extent of water quality monitoring and reporting required of each Discharger is a function of the Discharger's designated tier (as defined in Order No. R2-2016-00XX). Tiers established under this Order relate to the anticipated effort by Water Board staff, per incremental improvement in water quality. The tier-specific requirements are as follows:

A. Tier 1 Dischargers (Stewardship Tier[33]):

1. BMP Implementation Monitoring

Photo-points provide a qualitative indication of BMP performance and habitat and water quality conditions in receiving waters. Photo-points shall be established and monitored to document winter readiness, demonstrate annual maintenance practices and BMP implementation, and to document habitat and water quality conditions in receiving waters at and/or near points of discharge from the vineyard. Photo-points shall be numbered and depicted on maps contained in the Farm Plan (requirements and specifications for the Farm Plan are included in Attachment A). Photo-point records and field notes shall be

[33] To qualify for the Stewardship Tier, a Vineyard Property must: 1) develop a Farm Plan that is Certified by an approved Third-Party Program or a Qualified Professional; 2) the Farm Plan must be fully implemented and have attained all applicable performance standards for discharge; and 3) (as applicable) effective management actions also must be implemented to protect and/or restore stream-riparian habitat complexity and connectivity (as described in detail in Attachment A, Fully Protected Stream-Riparian Corridors).

appended to the Farm Plan. Guidance regarding establishment and protocols for photo-point monitoring are provided in OWEB (2007) and NRCS (2009).

2. Reporting

A letter certifying that: a) the Farm Plan has been fully implemented; b) the Vineyard Property has attained performance standards for discharge; and c) passive and/or active restoration measures[34] have been implemented (as defined in Attachment A), must be submitted to the Water Board by an approved Third-Party Program or a Qualified Professional. Once every five years thereafter, a letter of recertification must be submitted.

B. Tier 2 Dischargers (Farm Plan certified by a Third-Party Program or a Qualified Professional):

Dischargers permitted under Tier 2 are required to perform BMP Implementation Monitoring, and as specified below also are required to perform BMP Effectiveness Monitoring.

1. BMP Implementation Monitoring: as specified under the requirements for Tier 1.

2. BMP Effectiveness Monitoring[35]: Tier 2 Dischargers that include Hillslope Vineyards shall perform either:

a) Property-specific monitoring of the effectiveness of vineyard BMPs implemented to achieve the performance standards for storm runoff (as specified below under the requirements for Tier 3); or

b) Participate in a Group Monitoring Program as described immediately below. A Group Monitoring Program can be developed and administered by an approved Third-Party Program or a fee collection group. All dischargers who have completed a Farm Plan that has been Certified by an approved Third-Party Program or Qualified Professional are eligible to participate in a Group Monitoring Program subject to terms and conditions established by the organization conducting the Group Monitoring Program.

Group Monitoring Program Option: To assess effectiveness of BMPs implemented to achieve the performance standards for storm runoff from Hillslope Vineyards[36], the Group Monitoring Program shall:

[34] The stream-riparian restoration measures are only applicable where the Vineyard Property includes unconfined alluvial channels (see Attachment A for details).

[35] Within the project area, in almost all cases, vineyard storm runoff estimates have been based solely upon modeling. Vineyard BMP monitoring is intended to evaluate whether the key assumptions of these models are valid, and also to confirm that results are accurate.

[36] Where soil infiltration values in vineyards (as specified below) are similar or greater to values in paired sites under natural vegetation cover, the performance standards for storm runoff from Hillslope Vineyards shall be considered achieved.

Characterize Hillslope Vineyard soil infiltration capacity: characterize Hillslope Vineyard soil infiltration capacity[37] as a function of geomorphic terrane type, slope class, and BMP type. This characterization can be developed from a stratified sample of vineyard properties. At a minimum, five vineyard properties in each defined geomorphic terrane type (Water Board, 2009, pp. 19-21) must be characterized; the alluvial fan and valley terrane type may be further subdivided based on the texture, age, or alluvial depositional environment. The field sampling protocol should be guided by Nimmo et al. (2009) or Bagarello et al. (2004). Other field sampling protocols also may be proposed for review and approval. The investigation shall be conducted under the supervision of a professional geologist or a professional engineer licensed to practice in the State of California, who has professional experience in conducting infiltration and/or groundwater testing programs.

Sample location and density: at a minimum, field saturated hydraulic conductivity (FSHC) shall be measured at ten randomly selected sites located within the inter-rows of each vineyard block. If the coefficient of variation (CV) for measured values of FSHC is > 100%, then additional sites shall be sampled until the CV is ≤ 100%. At Hillslope Vineyard sites, FSHC also shall be measured at a minimum of ten undeveloped hillslope sampling sites under natural vegetation cover to characterize pre-vineyard development site conditions. If the coefficient of variation (CV) for measured values of FSHC is > 100%, then additional sites shall be sampled until the CV is ≤ 100%.

Also, at all properties that are sampled, a soil profile description must be prepared in each mapped soil series that is planted in vineyard. The soil profile description shall be developed based on sampling and description of one-or-more soil pits, the locations of which shall be referenced. At Hillslope Vineyards, in addition to the description of the soil profile in each vineyard block, a soil profile description also must be prepared to characterize all of the delineated soil series under natural vegetation cover where FSHC is measured. Soil profile descriptions should be prepared by an experienced professional soil scientist.

Within two years of adoption of this Order, a study plan shall be submitted to the Executive Officer for review and approval. Within five years of adoption of this Order, a final report shall be submitted to the Water Board that presents and evaluates the field-saturated hydraulic conductivity and soil profile data. The report also shall evaluate the effectiveness of BMPs with regard to soil infiltration capacity. Where geometric mean values of soil infiltration capacity in Hillslope Vineyards are statistically similar or significantly greater than values at paired sites under natural vegetation cover, the

[37] "Infiltration is the movement of water into soil. There is a maximum rate at which the soil in a given condition can absorb water; this upper limit is called the infiltration capacity. Water that does not infiltrate, runs quickly over the ground surface, whereas water entering into the soil moves much more slowly underground. The soil, therefore, plays a major part in determining the volume of storm runoff, its timing, and its peak rate of flow." (Dunne and Leopold, 1978, p. 163) Soil infiltration capacity is sensitive to management practices and vegetation cover changes, and as such provides a useful basis for evaluation of the effects of vineyard development and management practices on storm runoff from Hillslope Vineyards.

performance standards for Hillslope Vineyard storm runoff (as related to BMP implementation to attenuate runoff) shall be considered achieved. Where geometric mean values for soil infiltration capacity in vineyards are significantly lower than in the paired sites under natural cover, consultation with a Qualified Professional and/or approved Third-Party Program is required under this Order to direct implementation of refined and/or supplemental BMPs to further attenuate storm runoff peak, and six years thereafter soil infiltration capacity shall be re-evaluated as specified above.

3. Reporting

Following permit adoption, each year by November 15 all Dischargers must submit an annual compliance report that documents progress toward completion of the Farm Plan and progress toward attainment of the performance standards for discharge. The Annual Compliance Form is included as Table E-1 in this attachment.

C. Tier 3 Dischargers (Farm Plan developed independently):

1. BMP Implementation Monitoring: as specified under Tier 1.

2. **BMP Effectiveness Monitoring:**

Tier 3 Dischargers that include Hillslope Vineyards shall assess performance of vineyard erosion control and runoff attenuation BMPs, the discharger shall develop a property-specific characterization of the soil infiltration capacity (i.e., field-saturated hydraulic conductivity) in the vineyard. The field sampling protocol should be guided by Nimmo et al. (2009) or Bagarello et al. (2004). Other field sampling protocols also may be proposed for review and approval. The investigation shall be conducted under the supervision of a professional geologist or a professional engineer licensed to practice in the State of California, who has experience in infiltration and groundwater testing.

Sample location and density: at a minimum, field saturated hydraulic conductivity (FSHC) shall be measured at ten randomly selected sites located within the inter-rows of each vineyard block. If the coefficient of variation (CV) for measured values of FSHC is > 100%, then additional sites shall be sampled until the CV is ≤ 100%.

At Hillslope Vineyard sites, FSHC also shall be measured at a minimum of 10 undeveloped hillslope sampling sites under natural vegetation cover to characterize pre-vineyard development site conditions. If the coefficient of variation (CV) for measured values of FSHC is > 100%, then additional sites shall be sampled until the CV is ≤ 100%.

At all sites a soil profile description also must be prepared for each mapped soil series that is planted in vineyard. The soil profile description shall be developed based on sampling and description of one-or-more soil pits, the locations of which shall be referenced. At Hillslope Vineyards, in addition to the description of the soil profile in each vineyard block, a soil profile description also must be prepared to characterize the all of the delineated soil series under natural vegetation cover where FSHC is measured.

Within two years of adoption of this Order, a study plan shall be submitted to the Executive Officer for review and approval. Within five years of adoption of this Order, a final report shall be submitted to the Water Board that presents and evaluates the field-

saturated hydraulic conductivity and soil profile data. The report also shall evaluate the effectiveness of BMPs with regard to soil infiltration capacity. Where geometric mean values of soil infiltration capacity in Hillslope Vineyards are statistically similar or significantly greater than values at paired sites under natural vegetation cover, the performance standards for Hillslope Vineyard storm runoff (as related to BMP implementation to attenuate runoff) shall be considered achieved. Where geometric mean values for soil infiltration capacity in vineyards are significantly lower than in the paired sites under natural cover, consultation with a Qualified Professional and/or approved Third-Party Program is required under this Order to direct implementation of refined and/or supplemental BMPs to further attenuate storm runoff peak, and six years thereafter soil infiltration capacity shall be re-evaluated as specified above.

3. Reporting

Following permit adoption, each year by November 15 all Dischargers must submit an annual report that documents progress toward completion of the Farm Plan and progress toward attainment of the performance standards for discharge. The Annual Reporting Form and Schedule for Compliance are included as Table E-1 to this attachment.

Tier 3 Dischargers also must submit a completed Farm Plan (as specified in Attachment A) to the Water Board for review and approval in conformance with the schedule for compliance specified in Attachment A.

References

Bagarello, V., M. Iovino, and D. Elrick, 2004. A simple falling-head technique for rapid determination of field-saturated hydraulic conductivity. Journal of the Soil Science Society of America (68): 66-73.

Dunne, T. and L. B. Leopold, 1978. Water and Environmental Planning. p. 163.

Nimmo, J.R., K. M. Schmidt, K. S. Perkins, and J. D. Stock, 2009. Rapid measurement of field-saturated hydraulic conductivity for areal characterization. Vadose Zone Journal (8): 142-149.

NRCS, 2009. Conservation Planning Technical Note #5: Guidance on establishing photo points and plots for monitoring. USDA Natural Resources Conservation Service, Pacific Islands Area.

Oregon Watershed Enhancement Board (OWEB), 2007. OWEB guide to photo point monitoring. Oregon watershed Enhancement Board: Salem, OR.

Water Board, 2009. Napa sediment TMDL and habitat Enhancement Plan, Staff Report. Water Board: Oakland, CA pp. 19-21.

TABLE E-1: ANNUAL CERTIFICATION FORM

This Vineyard Property is in compliance with the General WDRs Permit for Vineyard Properties in the Napa River and Sonoma Creek Watersheds, Resolution No. R2-2016-00XX).

Vineyard Property Name:	Phone: Email:
Mailing Address or P.O. Box:	City, State, ZIP Code:
List all Assessor Parcel Numbers (APNs) or legal description (Township, Range, Sections) for the Vineyard Property included in this plan:	

Enrolled under: ☐Tier 1 ☐Tier 2 ☐ Tier 3

Farm Plan (check each box below, as applicable)

☐ Farm Plan has been completed.
☐ Farm Plan has been Certified[38] by: _____
☐ Farm Plan has been fully implemented.

Property Inspections (fill in dates when inspections were completed)

☐ Representative photo-points have been established and are being monitored to document winter readiness, to demonstrate BMP implementation, and to document habitat and water quality conditions in receiving waters.

☐ Inspections, prior to the wet season, were conducted in the Farm Area and on Vineyard Property access roads to ensure readiness. Date(s) of inspection(s): _____

☐ Inspections, and as needed maintenance actions, were completed during the wet season to confirm that BMPs are functioning properly and/or to address problems.

Date(s) of inspection(s):_____

Date(s) of inspection(s):_____

Date(s) of inspection(s):_____

If the Vineyard Property includes Hillslope Vineyard Blocks:

☐ Field surveys were conducted to assess compliance with the bed & bank erosion performance standard.

[38] Certified means an approved Qualified Professional or Third-Party Program has reviewed the Farm Plan, and concluded that upon its full implementation, the Vineyard Property would achieve all applicable performance standards for discharge.

Date(s) of field survey(s): _____

TABLE E-1 (CONTINUED): ANNUAL CERTIFICATION FORM

Baseline Conditions as Related to Performance Standards

Farm Area

Acres in the Farm Area: _____ # of Vineyard Blocks: _____

Acres under a County approved ECP: _____ # of Vineyard Blocks under County approved ECP: ___

Hillslope Vineyard Runoff

☐ The Vineyard Property includes Hillslope Vineyard blocks.

☐ Hillslope Vineyard blocks drain into an unstable area (e.g., landslide, gully, or head-cutting or down-cutting channel).

☐ The Farm Plan includes BMPs to achieve the performance standard for bed and bank erosion.

Unpaved Roads

Miles of unpaved roads: _____
Percent, by length, of unpaved roads that are hydrologically connected: _____

Number of stream crossings along unpaved roads: ___
Of these, number of crossings with diversion potential: ___

Number of stream crossings on unpaved roads that drain forested areas ____
Of these, number. of stream crossings with trash racks ____

Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Owner or Authorized Representative Printed Name*:_____

Owner or Authorized Representative Signature: _____
Date:_____

Telephone Number: _____Email:_____

***** A duly authorized person designated by the owner of the Vineyard Property, as having responsibility for the overall operation of the regulated facility. The authorized representative may be the Vineyard Property operator or operator's duly authorized designee.

ATTACHMENT F

California Regional Water Quality Control Board
San Francisco Bay Region

General Waste Discharge Requirements
Order No. R2-2016-00XX

CEQA Impacts and Mitigation Measures

Table F-1 provides a summary of impacts and mitigation measures, which are presented in detail in the Environmental Impact Report.

Table F-1: Summary of CEQA Impacts and Mitigation Measures

Category: Air Quality and Greenhouse Gases		
EIR Impact No.	Impact Summary	General Order Mitigation Measures
Impact 5.1	Compliance actions (e.g., construction of BMPs that involve earth moving) completed at Vineyard Properties throughout the project area could conflict with implementation of an applicable air quality plan. The primary pollutant of concern is fine particulate matter.	Where compliance actions are subject to the requirement to obtain a discretionary permit from the local land-use authority and/or from another State or federal agency, as applicable, the Discharger shall implement Mitigation Measures AQ-1 through AQ-4.
Impact 5.2	Compliance actions (e.g., construction of BMPs that involve earth moving) completed at Vineyard Properties throughout the project area could violate air quality standards or contribute substantially to an existing or projected air quality violation. The primary pollutant of concern is fine particulate matter.	Where compliance actions are subject to the requirement to obtain a discretionary permit from the local land-use authority and/or from another State or federal agency, as applicable, the Discharger shall implement Mitigation Measures AQ-1 through AQ-4.
Impact 5.4	Compliance actions (e.g., construction of BMPs that involve earth moving) completed at Vineyard Properties throughout the project area may have the potential to expose sensitive receptors to substantial pollutant concentrations. The primary pollutant of concern is fine particulate matter.	Where compliance actions are subject to the requirement to obtain a discretionary permit from the local land-use authority and/or from another State or federal agency, as applicable, the Discharger shall implement Mitigation Measures AQ-1 through AQ-4.
Impact 5.6	Compliance actions (e.g., construction of BMPs that involve earth moving) completed at Vineyard Properties throughout the project area may generate significant GHG emissions.	Where compliance actions are subject to the requirement to obtain a discretionary permit from the local land-use authority and/or from another State or federal agency, as applicable, the Discharger shall implement Mitigation Measure GHG-1.

Table F-1 (Cont.): Summary of CEQA Impacts and Mitigation Measures

Category: Biological Resources		
EIR Impact No.	Impact Summary	General Order Mitigation Measures
Impact 6.1b	Short-term increases in sedimentation associated with BMP construction in some cases may have the potential to adversely affect special-status aquatic species.	As identified in the EIR, and as applicable to the actions taken to comply with this Order, the Discharger shall implement mitigation measures BR-1 through BR-8.
Impact 6.2	BMP construction and/or maintenance, in some cases may have the potential to adversely affect riparian habitats and/or special-status species therein.	As identified in the EIR, and as applicable to the actions taken to comply with this Order, the Discharger shall implement mitigation measures BR-1 through BR-8.
Impact 6.3	Noise generated by heavy equipment used to construct BMPs could in some cases disrupt breeding or nesting by special-status bird species.	As identified in the EIR, and as applicable to the actions taken to comply with this Order, the Discharger shall implement mitigation measures BR-1 through BR-8. Also, where compliance actions are subject to the requirement to obtain a discretionary permit from the local land-use authority and/or from another State or federal agency, as applicable, the Discharger shall implement Mitigation Measures BR-9 and BR-10.
Impact 6.4	Detention basins and/or new storm-proofed roads could be sited in upland areas (i.e., areas upslope of waters and wetlands of the State) outside of the developed footprint of the Vineyard Property that in some cases may provide habitat for special-status species and/or are defined as Sensitive Natural Communities. In such cases, impacts to these biological resources could be significant.	As identified in the EIR, and as applicable to the actions taken to comply with this Order, the Discharger shall implement mitigation measures BR-1 through BR-8. Also, where compliance actions are subject to the requirement to obtain a discretionary permit from the local land-use authority and/or from another State or federal agency, as applicable, the Discharger shall implement Mitigation Measures BR-9 through BR-11.

Table F-1 (continued): Summary of CEQA Impacts and Mitigation Measures

Category: Cultural Resources		
EIR Impact No.	Impact Summary	
Impact 7.2	Compliance actions (e.g., construction of BMPs that involve earth moving) may have the potential at some Vineyard Properties to cause a substantial adverse change in the significance of an archeological resource.	Where compliance actions are subject to the requirement to obtain a discretionary permit from the local land-use authority and/or from another State or federal agency, as applicable, the Discharger shall implement Mitigation Measure CR 7-2.
Impact 7.3	Compliance actions (e.g., construction of BMPs that involve earth moving) may have the potential at some Vineyard Properties to directly or indirectly destroy a unique paleontological or geologic feature.	Where compliance actions are subject to the requirement to obtain a discretionary permit from the local land-use authority and/or from another State or federal agency, as applicable, the Discharger shall implement Mitigation Measure CR 7-2.
Impact 7.4	Compliance actions (e.g., construction of BMPs that involve earth moving) may have the potential at some Vineyard Properties to disturb human remains including those interred outside of formal cemeteries.	Where compliance actions are subject to the requirement to obtain a discretionary permit from the local land-use authority and/or from another State or federal agency, as applicable, the Discharger shall implement Mitigation Measure CR 7-2.
Category: Hydrology and Water Quality		
EIR Impact No.	Impact Summary	General Order Mitigation Measures
Impact 8.4b	Construction activities on unpaved roads and/or outside of the developed footprint of the vineyard that would occur in order to comply with the general WDRs, which could result in temporary increases in fine sediment delivery to stream channels, and resultant sedimentation.	As identified in the EIR, and as applicable to the actions taken to comply with this Order, the Discharger shall implement mitigation measures BR-1 through BR-8.

Note: all compliance actions listed above that are subject to the requirement to obtain a discretionary permit from the local land-use authority and/or from another state or federal agency, as applicable, can and should be adopted by other agencies as part of their respective approval processes (See CEQA Guideline 15091 and 15126.4.).

The following mitigation measures identified in the Environmental Impact Report for these general WDRs shall be implemented by the Discharger, as applicable to actions taken to comply with this Order:

A. Biological Resources

Mitigation Measure BR-1: Requirement to Obtain and Comply with CWA 401 permits

Where BMP construction overlaps with and/or disturbs a stream channel, riparian area, and/or other wetlands or waters of the United States, the Water Board would require the project proponent to comply with Mitigation Measure BR-1: to apply for a Clean Water Act (CWA) section 401 permit.

Projects subject to CWA section 401 permits also are subject to CWA section 404 permits issued by the U.S. Army Corps of Engineers, and also to Endangered Species Act Section 7 Consultations where species listed under the federal Endangered Species Act have the potential to occur. Where BMP construction activities overlap at all with aquatic and/or riparian habitats, they also are subject to Streambed Alteration Agreements issued by the California Department of Fish and Wildlife (CDFW).

Mitigation Measures BR-2 through BR-8: Construction Activity Controls

To avoid significant increases in sediment delivery to channels (and resultant sedimentation) that could arise from any construction activities undertaken to comply with the general WDRs, the Discharger shall incorporate a suite of Construction Activity Controls (Mitigation Measures BR-2 through BR-8), shown below, to avoid and minimize potential pollutant discharges that may be associated with construction activities and/or post-construction erosion in areas that were disturbed.

Mitigation Measure BR-2: Temporal Limitations on Construction

1. The timing of construction activities will take into consideration fisheries and other aquatic wildlife usage in the project area. Construction activities will occur in the period between June 1 and October 15, unless (as applicable[39]) CDFW, U.S. Fish & Wildlife Service, and/or NOAA Fisheries define an alternative work window to avoid site specific impacts on special-status species. Work in and around streams that support anadromous fish populations or California freshwater shrimp may not begin until June 15. Work beyond October 15 may be authorized on a site-specific basis with approval (as applicable) from the Water Board, CDFW, USFWS, and/or NOAA Fisheries and provided the work would be completed prior to first winter rains. Planting may occur after October 15, if success of vegetation establishment is increased due to more favorable environmental conditions. Planting above the ordinary high water line may occur at any time of the year.
2. Excavation and grading activities shall occur only in dry weather periods. Upon completion of grading, slope protection of all disturbed sites will be installed prior to the onset of rain.

[39] In describing requirements under Mitigation Measures BR-2 through BR-8, "as applicable" refers to all projects (BMP construction/maintenance actions) that are subject to the requirement to obtain a permit from the agency that is indicated in the text that follows.

3. Construction within 75 feet of established riparian vegetation shall be avoided during the migratory bird nesting season (February 15 to August 15). If work must occur during this period, a qualified biologist or individual approved by CDFW will conduct a pre-construction survey for bird nests or nesting activity in the project area. If active nests or nesting behavior are observed (for any species other than starlings and house sparrows) an exclusion zone of 75 feet will be established to protect the nesting birds. If any listed or sensitive bird species are identified, CDFW must be notified prior to further action. Take of active bird nests is prohibited.
4. To protect California red-legged frog (CRLF) and/or foothill yellow-legged frog, all construction within stream channels shall take place during daylight hours. If suitable habitat is present for CRLF or foothill yellow-legged frog, project activities will begin after July 1 to avoid impacts on breeding or egg masses.

Mitigation Measure BR-3: Construction Site Management Controls

1. As feasible, the Discharger shall use existing ingress or egress points. Placement of temporary access road, staging areas, and other facilities shall avoid or limit disturbance to habitat and will be restored to preconstruction conditions.
2. Disturbance to existing grades and vegetation shall be limited to the actual site of the conservation project and necessary access routes.
3. Trash, litter, construction debris, cigarette butts, etc., shall be stored in a designated portion of the construction site (that does not overlap with or impact natural habitat areas), and/or shall be removed from the site at the end of each working day. Upon completion of work, the Discharger is responsible for removing all trash, litter, construction debris, cigarette butts, etc.
4. All construction debris and sediments shall be taken to appropriate landfills or, in the case of sediments, disposed of in upland areas on- or offsite.
5. No petroleum products, chemicals, silt, fine soils, and any substances deleterious to fish, amphibian, plant, or bird life shall be allowed to pass into, or be placed where it can pass into the waters of the state.
6. Contractors shall have emergency spill cleanup gear (spill containment and absorption materials) and fire equipment available on site at all times.
7. The use or storage of petroleum-powered equipment shall be accomplished in a manner to prevent the potential release of petroleum materials into waters of the state (Fish and Game Code §5650).
8. All vehicles and equipment on the site must not leak any type of hazardous materials such as oil, hydraulic fluid, or fuel. Fueling shall take place outside of the riparian corridor.
9. As needed, a contained area located at least 50 feet from a watercourse shall be designated for equipment storage, short-term maintenance, and refueling. If possible, these activities will not take place on the project site.
10. Vehicles shall be inspected for leaks and repaired immediately. Leaks, drips, and other spill will be cleaned up immediately to avoid soil or groundwater contamination. Major vehicle maintenance and washing will be done off site. All spent fluids, including motor oil, radiator coolant, or other fluids, and used vehicle batteries will be collected, stored, and recycled as

hazardous waste off site. Dry cleanup methods (i.e., absorbent materials, cat litter, and/or rags) will be available on site. Spilled dry materials will be swept up immediately

11. Best management practices for construction period runoff and erosion control shall be employed as described in Requirements for Erosion Control below.

Mitigation Measure BR-4: Erosion Control Requirements

1. Best management practices for construction period runoff and erosion control shall be employed.
2. Erosion control and/or sediment detention devices shall be incorporated into the project design and implemented at the time of construction. These devices will be in place prior to October 15 for the purposes of minimizing fine sediment input to flowing water. These devices will be placed at all locations where the likelihood of sediment input exists. Sediment collected in these devices will be disposed of away from the collection site and above the normal high water mark. These devices will be inspected regularly to ensure they are functioning properly.
3. The project site will be restored to pre-construction condition or better. Disturbed areas shall be re-vegetated prior to the onset of rain by live planting, native seed casting, or hydro-seeding. See also Limitations on Construction Equipment, Earthmoving, and Vegetation Removal sections below.
4. When implementing or maintaining a critical area planting[40] above the high water line, a filter fabric fence, biodegradable fiber rolls, gravel bars, and/or hay bales shall be utilized, if needed, to keep sediment from flowing into the adjacent waterbody. At the time vegetation is sufficiently mature to provide erosion control, it may be appropriate to remove the fence, fiber rolls and/or hay bales. Annual review by the vineyard owner/operator and/or their representative(s) will occur until the critical area planting is established to control erosion.
5. All debris, sediment, rubbish, vegetation, or other material removed from the channel banks, channel bottom, or sediment basins shall be removed to a location where they will not re-enter the waters of the state.
6. Soil exposed as a result of construction and soil above rock riprap shall be re-vegetated using native seed casting or by hydro-seeding prior to the onset of rain. In general, interstitial spaces between rocks will be planted with riparian vegetation such as willows rather than hydro-seeded.
7. Discharge of decant water from any onsite temporary sediment stockpile or storage areas or any other discharge of construction dewatering flows to surface waters, except as described in Limitations to Work in Streams and Permanently Ponded Areas below, outside of the active dredging site is prohibited.
8. Inspection of the performance of sediment control devices shall occur at least once each day during construction to ensure the devices are functioning properly.

[40] A critical area planting involves establishing permanent vegetation on sites that have or are expected to have, high erosion rates.

Mitigation Measure BR-5: Limitations on Construction Equipment

1. As feasible, the Discharger shall use existing ingress or egress points, and work will be performed from the top of creek banks.
2. When heavy equipment is used, woody debris and vegetation on banks and in the channel shall not be disturbed if outside of the project's scope.
3. Heavy equipment shall not be used in a flowing stream, creek, or ponded area, except to cross a stream or pond to access the work site.
4. Heavy equipment use in a streambed is only permissible when the streambed is dry. The amount of time heavy equipment is stationed, working, or traveling within the creek bed shall be minimized.
5. Use of heavy equipment shall be avoided in a channel bottom with rocky or cobbled substrate. If access to the work site requires heavy equipment to travel on a rocky or cobbled substrate, a rubber tire loader/backhoe is the preferred vehicle.

Mitigation Measure BR-6: Limitations on Earthmoving

1. Finished grades shall not exceed 2:1 side slopes.
2. Excavated material not used in the implementation of the BMP shall be removed out of the 100-year flood plain.
3. Placement of temporary access roads, staging areas, and other facilities shall avoid or limit disturbance to habitat and shall be restored to pre-construction conditions.
4. Road improvement projects shall be modeled on the "Handbook for Forest and Ranch Roads: A Guide for planning, designing, constructing, reconstructing, maintaining and closing wildland roads," (Weaver et al., 2014).
5. If the substrate of a seasonal pond, creek, stream or waterbody is altered during work activities, it shall be returned to approximate pre-construction conditions after the work is completed, unless (as applicable) NOAA Fisheries and/or CDFW determine that other measures should be implemented.
6. Overhanging banks within potential California freshwater shrimp habitat shall remain undisturbed.

Mitigation Measure BR-7: Limitations on Vegetation Removal and Replanting

1. The spread or introduction of exotic plant species shall be avoided to the maximum extent possible by avoiding areas with established native vegetation during project activities, restoring disturbed areas with native species where appropriate, and performing post-project monitoring and control of exotic species.
2. Removal of invasive exotic species is strongly recommended. Removal using hand tools, including chainsaws and weed-whackers, and hand pulling of exotics shall be done in preparation for establishment of native plantings. To the extent possible, re-vegetation will be implemented at the same time removal of exotic vegetation occurs. If giant reed (*Arundo donax*) is removed, cuttings will be disposed of in a manner that shall not allow reseeding to occur.

3. Disturbance of native shrubs or woody perennials or removal of trees from streambanks or stream channels will be avoided or minimized; if native riparian vegetation will be disturbed, it will be replaced with similar native species.

4. Except (as applicable) with approval from CDFW, there will be no cutting or removal of native trees 4" or greater diameter at breast height (DBH), except willows, for which there will be no cutting or removal of trees 6" or greater DBH. Exotic trees that are causing habitat damage or hazardous situations may be removed with approval of the project biologist. Any exotic trees removed will be replaced with appropriate natives. For any permitted tree removal, the root structure will be left intact unless (as applicable) removal is authorized by CDFW.

5. If native trees over 6" DBH are to be removed (with approval from CDFW), they will be replaced at a 3:1 ratio.

6. Projects within potential California red-legged frog habitat will be designed to minimize disturbance to vegetation near or in permanent and seasonal pools of streams, marshes, ponds, or shorelines with extensive emergent or weedy vegetation.

7. Project activities in areas of potential California freshwater shrimp habitat will avoid removal of or damage to overhanging vegetation along stream channels.

8. Hand labor will be used to trim vegetation within the channel or on the bank. Handheld equipment such a weed-whackers and chainsaws are authorized.

9. Native plants characteristic of the local habitat type will be the preferred alternative when implementing and maintaining the BMPs in natural areas. When specified, as required by the regulatory agencies, only native plant species will be used. Under special circumstances, regulators may allow for the use of non-invasive, non-persistent grass species.

10. All areas disturbed by the project or in which vegetation was removed will be restored to a natural state with native trees, shrubs, and/or grasses. Barren areas will typically be planted with a combination of willow stakes, native shrubs, and trees and/or erosion control grass mixes.

11. For projects that have removed native vegetation, post-construction re-vegetation success shall be equivalent to or better than the pre-project conditions. If, after 5 years, that level of success has not been achieved, the vineyard owner/operator or their representative(s) shall consult with CDFW to develop and implement measures to achieve success.

12. If needed, an irrigation system shall be installed to ensure establishment of vegetation; when vegetation is sufficiently established, irrigation materials will be removed.

13. The project area shall be restored to pre-construction conditions or better.

Mitigation Measure BR-8: Limitations on Work in Streams and Permanently Ponded Areas

1. In specific cases where it is deemed necessary to work in a flowing stream/creek, the work area shall be isolated, and all flowing water shall be temporarily diverted around the work site to maintain downstream flows during construction. A qualified biologist shall prepare a species protection and dewatering plan and be present for all dewatering and re-watering events. The plan shall be prepared with guidance (as applicable) from NOAA Fisheries

and/or CDFW. When construction is completed, the flow diversion structure shall be removed in a manner that will allow flow to resume with the least disturbance to the substrate and water quality.

B. Hydrology and Water Quality

Dischargers shall comply with Mitigation Measures, BR-2 through BR-8 (described above), which address potential short-term construction-related increases in erosion and sedimentation impacts. These include:

- Temporal limits on construction activities (BR-2)
- Construction site management actions (BR-3)
- Requirements for erosion control (BR-4)
- Limitations on heavy-equipment use (BR-5)
- Limitations on earth moving/grading (BR-6)
- Limitations on vegetation removal and requirements for replanting (BR-7), and
- Limitations on work in streams and/or ponded areas (BR-8).

Where compliance actions are subject to the requirement to obtain a discretionary permit from the local land-use authority and/or from another State or federal agency, the following mitigation measures **(AQ-1** through **AQ-4**, **GHG-1**, **BR-9** through **BR-**11, and **CR-**1) shall be implemented by the Discharger, as applicable. These mitigation measures can and should be adopted by other agencies as part of their respective approval processes (See CEQA Guideline 15091 and 15126.4.).

C. Air Resources - Mitigation Measures

For implementation of BMPs with a construction site size of four acres or less, implementation of the Basic Measures (mitigation measure **AQ-1**) described below would reduce this impact to a less than significant level. For implementation of BMPs with a construction site size greater than four acres, implementation of the Enhanced Measures (mitigation measure **AQ-2**) described below would reduce this impact to a less than significant level. For implementation of BMPs that are large in area, located near sensitive receptors, or which for other reasons may warrant additional emissions reductions, implementation of the Optional Measures (mitigation measure **AQ-3**) described below would reduce this impact to a less than significant level. Implementation of mitigation measure **AQ-4,** described below, is recommended in areas considered likely to contain naturally occurring asbestos (NOA).

The following are the Basic Measures from Table 2 of the 1999 BAAQMD CEQA Guidelines, which describes the measures as those that would be implemented at all construction sites, with **AQ-4** being implemented at sites likely to contain NOA. The following descriptions are directly from the BAAQMD CEQA Guidelines and describe measures for the wide range of land use and infrastructure projects that may not be applicable to all BMPs. However, because detailed information on implementation of specific BMPs to comply with these general WDRs is not available, the following list is cited to be as inclusive as possible.

Mitigation Measure AQ-1: Basic Criteria Pollutant Emission Controls

The following Basic Measures from Table 2 of the 1999 BAAQMD CEQA Guidelines shall be implemented during construction at sites 4 acres or less in size:

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.

Mitigation Measure AQ-2: Enhanced Criteria Pollutant Emission Controls

The following Enhanced Measures from Table 2 of the 1999 BAAQMD CEQA Guidelines shall be utilized at construction sites larger than 4 acres in size:

- All “Basic” control measures listed above.

- Hydro-seed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
- Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.)
- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.

Mitigation Measure AQ-3: Optional Criteria Pollutant Emission Controls

The following are the Optional Measures from Table 2 of the 1999 BAAQMD CEQA Guidelines, which describes the measures as those that are strongly encouraged at construction sites that are large in area, located near sensitive receptors or which for any reason may warrant additional emissions reductions:

- Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site.
- Install wind breaks, or plant trees/vegetative wind breaks at windward side(s) of construction areas.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.
- Limit the area subject to excavation, grading and other construction activity at any one time.

Mitigation Measure AQ-4: Naturally-Occurring Asbestos Emission Reduction Controls

The following mitigation measure shall be implemented at sites containing naturally occurring asbestos. Implementation of the following mitigation measure would reduce this impact to a less than significant level.

- Comply with the BAAQMD NOA program and ARB ATCM 93105. Complying with these regulations would reduce the potential for entraining NOA, and reduce this impact to a less than significant level.

D. Greenhouse Gas Emissions (GHG-1)

The following mitigation measures can reduce the amount of construction-related GHG emissions:

Mitigation Measure GHG-1: Greenhouse Gas Emissions Controls

- Use Newer Construction Equipment. Construction equipment with newer engine models is subject to stricter emissions standards, and would generate less GHG emissions.

- Use Equipment Powered by Electricity. Some types of equipment can be powered by either diesel fuel, electricity, or a hybrid. Use of equipment powered by electricity or a hybrid would generally generate less GHG emissions.
- Use Equipment Powered by Alternative Fuels. Some types of equipment can be powered by alternative fuels (i.e., not diesel fuel). Use of alternative fuels would generally generate less GHG emissions.

Mitigation Measure BR-9: Limitations on Work within ¼ mile of Douglas fir or Redwood Habitat

1. Wherever road erosion control BMPs and/or detention basins are constructed using heavy equipment, and these projects occur within ¼ -mile of Douglas fir or redwood forest habitat, construction activities shall be restricted to August 1st through October 15th to avoid overlapping with nesting periods of all special-status bird species including northern spotted owl; or if a protocol survey determines that suitable nesting habitat is unoccupied, construction activities may occur throughout the standard work window for compliance actions under the general WDRs, which is June 15-October 15.

Mitigation Measure BR-10: Limitations on Work within ¼ mile of Mapped Sensitive Natural Community

1. Wherever road erosion control BMPs and/or detention basins are constructed using heavy equipment, and these projects occur within ¼-mile of any mapped sensitive natural community (that may provide potential breeding and/or nesting habitat for special-status birds) and/or there has been a documented occurrence of any special-status bird species, the work window for heavy equipment use shall be restricted to August 1st through October 15th to greatly reduce the potential for overlap with breeding and nesting periods of special-status bird species. Alternatively, if a protocol survey determines that potentially suitable nesting habitat is not present or unoccupied then construction activities may occur throughout the standard work window for compliance actions under the general WDRs, which corresponds to June 15-October 15.

Mitigation Measure BR-11: **Preparation of a Biological Inventory**

1. If protected species or their habitats are present at the project area, the Discharger, prior to any ground disturbance or construction, shall engage a qualified biologist to prepare biological inventory of site resources. If protected species or their habitats are present, the Discharger shall comply with applicable federal and state endangered species acts and regulations. The Discharger shall ensure that important fish or wildlife movement corridors or nursery sites are not impeded by project activities.

E. Cultural Resources

Mitigation Measure CR-1: Cultural Resources Survey and Consultations

Recognized and accepted measures that are routinely required before and during construction that involves earthmoving include:

1. Perform a cultural resources survey by a qualified archaeologist or cultural specialist that conforms to the U.S. Secretary of the Interior's Professional Qualifications Standards, as published in 36 Code of Federal Regulations.

2. Contact the State Historic Preservation Officer and federal lead agencies as appropriate for coordination of Nation-to-Nation consultations with the Native American Tribes.

3. Consult a qualified paleontological resources specialist to determine whether paleontological resources would likely be disturbed in a project area on the basis of the sedimentary context of the area and a records search for past paleontological finds in the area. The assessment may suggest areas of high or known potential for containing resources. If the assessment is inconclusive, a surface survey is recommended to determine the fossil potential and extent of the pertinent sedimentary units within the project site. If the site contains areas of high potential for significant paleontological resources and avoidance is not possible, prepare a paleontological resources mitigation plan.

4. Consult established archaeological and historical records and conduct a field survey of the project prior to construction. Survey records shall be filed with the appropriate archaeological or historical data centers.

5. Consult with local Native American representatives as appropriate to obtain local knowledge of the project vicinity.

6. Prepare site development and grading plans that avoid disturbance of known cultural sites and/or documented sensitive areas. Project plans shall include appropriate measures to protect sensitive resources.

7. Retain a qualified archaeologist or Native American representative to monitor site development activities, particularly grading and trenching. If artifacts are observed during construction, require that construction be halted until a qualified archaeologist has been consulted.

8. Alert onsite workers to the possibility of encountering human remains during construction activities, and prepare appropriate procedures. It is usually required that all construction activities near the location of identified human skeletal remains are halted until proper consultation and mitigation is arranged.

ATTACHMENT G

California Regional Water Quality Control Board
San Francisco Bay Region

General Waste Discharge Requirements
Order No. R2-2016-00XX

GLOSSARY OF TERMS

Annual Certification Form	A form submitted to the Water Board annually, documenting progress with regard to development of a Certified Farm Plan, required monitoring, and water quality conditions as compared to Performance Standards.
Beneficial Use	The uses of water protected against degradation, such as: domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation and preservation of fish and wildlife, and other aquatic resources or preserves. Existing beneficial uses are uses that were attained in the surface or groundwater after Nov. 28, 1975 and potential beneficial uses are uses that would develop in the future through control measures.
Best Management Practice (BMP)	Methods or measures designed and selected to effectively control the discharge of pollutants from point and nonpoint source discharges.
California Environmental Quality Act (CEQA)	The California Environmental Quality Act (CEQA) establishes a duty for public agencies to avoid or minimize environmental damage where feasible, recognizing that a public agency has an obligation to balance a variety of public objectives. Passed into law in 1970, CEQA sets statewide policies that require both state and local agencies to consider the environmental consequences of decisions that involve changes to the environment. It applies to projects that require discretionary approval by a government agency.
Certified Farm Plan	Certified Farm Plan means an approved Qualified Professional or Third-Party Program has reviewed the Farm Plan, and concluded that upon its full implementation, the Vineyard Property would achieve all applicable performance standards for discharge.

Discharger	Landowner and operator of Vineyard Property discharging, or proposing to discharge waste from a Vineyard Property.
Erosion	The detachment and movement of soil and rock fragments by water or under the force of gravity, which result in the wearing away of the land. When water is the eroding agent, erosional processes include sheet and rill erosion, gully erosion, and channel erosion.
Farm Area	The area that includes at a minimum, the vineyard blocks, and also vineyard lanes, and avenues (i.e., the field roads along the edges and/or in between the vineyard blocks).
Farm Plan	The plan described in Attachment A of this Order documenting natural features, developed areas, and best management practices implemented to achieve applicable performance standards for discharge.
Field Saturated Hydraulic Conductivity	Field saturated hydraulic connectivity is the hydraulic connectivity of the soil when it has been brought to a near-saturated state by water applied abundantly at the land surface, typically by processes such as ponded infiltration or copious rainfall or irrigation. This term is roughly analogous with infiltration capacity.
Hillslope Vineyard	An area where grapes are planted on an average slope that is greater than 5 percent.
Hydrologic Connectivity	Having a continuous surface flow path (road ditches, road surfaces, gullies, or other drainage structures or disturbed surfaces) to a natural stream channel during a storm runoff event.
Incision	The progressive lowering over time of streambed elevation, as a result of net erosion.
Infiltration	The movement of water into soil.
Infiltration capacity	The maximum rate at which the soil can absorb water.
Landowner	An owner or proprietor of land.
Monitoring and Reporting Program	The monitoring and reporting required by a Discharger enrolled under this Order.
Nonpoint Source	The Clean Water Act focuses on two possible sources of pollution: point and nonpoint. “Point” sources refer to discrete discharges, such as from a pipe. “Nonpoint” refers to everything else, including agricultural runoff.

Non-Point Source Policy	Adopted in 2004, the NPS Policy is designed to assist all responsible and/or interested parties in understanding how the State's NPS water quality control requirements will be implemented and enforced. The parties involved include the State Water Resources Control Board and the Regional Water Quality Control Boards, and also other federal, state and local agencies, individual dischargers, Third-party Programs and any other stakeholders.
Notice of Intent (NOI)	A document that must be completed by the Discharger or their representative, as required to enroll a Vineyard Property into the General WDRs permit.
Operator	Person(s) responsible for management decisions made in the operation of the Vineyard Property.
Photo-point Monitoring	Photo monitoring is a qualitative tool for documenting the current management of a farm or ranch, as well as, conditions or events that may assist in its management. Monitoring is based on the establishment of permanent photo locations or photographs, which can be revisited at regular intervals to reflect changes that have occurred over time at the same location.
Peak Runoff	The instantaneous maximum value for discharge during a storm runoff event, usually expressed as cubic feet per second.
Performance Standards	Standards for pollutant discharge control that are specified as conditions for discharge under this Order.
Qualified Professional	California registered professional in a discipline associated with erosion and sediment control including for example a professional engineer, licensed geologist, registered landscape architect or certified professional in erosion and sediment control.
Reach	A subdivision of a drainage system consisting of a discreet portion of a channel.
Report of Waste Discharge	The California Water Code Section 13260 states that persons discharging or proposing to discharge waste that could affect the quality of waters of the State, other than into a community sewer system, shall file a report of waste discharge (ROWD) with the appropriate Water Board, that completely characterizes the discharge. A complete characterization includes, but is not limited to, design and actual flows, a list of constituents and the

	discharge concentrations of each constituent, a list of other appropriate waste discharge characteristics, a description and schematic of all treatment processes, a description of best management practices used, and a description of disposal methods. The ROWD is used to start the application process for all waste discharge requirements except for general waste discharge requirements that use a Notice of Intent to satisfy the requirements of the ROWD.
Restoration	The returning of the natural/historic functions and values to a former or degraded site.
Ridgetop	A relatively flat topographic divide above divergent and descending slopes where one or more of the descending slopes has a natural slope steeper than fifty percent for more than fifty feet in slope length.
Riparian	Located along the edge of a channel, generally on the floodplain. Characterized by access to and influence of the channel, but not in it. A riparian zone or riparian area is the interface between land and a river system. Riparian habitat is composed of trees, and other vegetation and physical features normally found on the stream banks and flood plains associated with streams, lakes, or other bodies of water.
San Francisco Bay Basin Plan	The Water Board's master water quality control planning document, designating beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater.
Section 401 Water Quality Certifications	Water Quality Certifications are issued by the Water Board pursuant to Clean Water Act Section 401 to certify that projects permitted by the U.S. Army Corps of Engineers pursuant to Clean Water Act Section 404 meet State law, regulations, and policy.
Section 404	Refers to a section of the Clean Water Act establishing a permit program for the discharge of dredged or fill materials into waters of the United States.
Soil bioengineering	A method of bank stabilization emphasizing the incorporation of biological materials such as plants, plant parts (e.g., root wads), or a combination of vegetation and inert materials (e.g., brush mats/sills, wattles, fascines, or branch packing/layering).

Third-Party Program	An individual Qualified Professional or a Group with at least one staff recognized as a Qualified Professional that provides technical assistance/expertise to help dischargers comply with requirements of this Order.
Tier 1	Farms where the Farm Water Quality Protection Plan for the Vineyard Property, as described in Section F.1 and Attachment A, has been completed and Certified, the Certified Farm Plan is fully implemented to achieve all applicable performance standards for discharge, and the Vineyard Property establishes stream setbacks and/or participates in tributary or reach-based stewardship (as specified in Attachment A).
Tier 2	Discharger is working with an approved Third-Party Program or Qualified Professional to develop a Certified Farm Plan for the Vineyard Property.
Tier 3	Discharger that elects to develop a Farm Plan for a Vineyard Property independently - without the Farm Plan being certified by an approved Third-Party Program or Qualified Professional.
Total Maximum Daily Load	An evaluation of the condition of an impaired surface water on the Section 303(d) List that establishes limitations on the amount of pollution that water can be exposed to without adversely affecting its beneficial uses, and allocating proportions of the total limitation among dischargers to the impaired surface water.
Vineyard Properties	The entire parcel or contiguous parcels under the same ownership, where grapevines are planted on part of the property.
Waste Discharge	The discharge of any waste, including sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.
Waste Discharge Requirement	State regulations pertaining to the treatment, storage, processing, or disposal of waste discharges.
Water Quality Objective	The limits or levels of water quality elements or biological characteristics established to reasonably protect the beneficial uses of water or the prevent problems within a specific area. Water quality objectives may be numeric or narrative.

Appendix B. GIS Analysis

Appendix B: GIS analysis to support evaluation of potential impacts

Our analysis was structured as follows.

1. For vineyard properties in the Napa River watershed, **we located available GIS data to estimate total vineyard property acreage and also planted acreage on hillslopes (> 5 percent) and valley floor sites (≤ 5 percent)**. For vineyard properties in the Sonoma Creek watershed, we could only locate available GIS data to estimate the total acreage of vineyard properties (available layers, with metadata, do not delineate the planted area separately). **Lacking additional GIS data, we assume that the Napa ratios** for property acreage to planted acreage, and also hillslope vineyard acreage to valley floor vineyard acreage, **also can be used to** approximately **characterize these same attributes in the Sonoma Creek watershed**.

2. **Lacking a reasonably complete road map**, available GIS layers only show about one-third of the roads, we used available road erosion inventories completed in tributary watersheds to the Napa River and/or Sonoma Creek (Pacific Watershed Associates, 2003a, 2003b, and 2003c) to estimate average road density (road length per unit land area), and the number of road crossings per mile of road, and as such to evaluate the types and scale of actions that would be needed to meet road sediment discharge performance standards.

3. **Hillslope vineyard planted acreage also was used as proxy to estimate** the scale of potential **compliance actions to control hillslope and/or channel erosion associated with concentrated runoff** form hillslope vineyards.

4. The relative magnitude of vineyard property acreage and hillslope planted acreage that would be enrolled under the proposed project and alternatives, were then used to scale or relatively rank potential impacts and also to characterize environmental benefits.

5. In estimating the relative impacts, we did not consider actions to achieve the vineyard surface erosion performance standard because most sites already have achieved this standard, and also because at sites where additional BMPs may be needed (i.e. cover crops, composted mulch, vegetated buffer strips, etc.), potential impacts in all cases would be less than significant.

Table B-1 presents the result of the GIS analysis to estimate planted vineyard and total property acreage that would be enrolled in the proposed General Permit (i.e., all vineyard properties where 5 acres or more are planted in vineyard), and also in proposed project alternatives (i.e., 10 acres or more planted; and 5 acres or more planted, excluding properties located upstream of municipal reservoirs), and/or alternatives that were suggest but dismissed for the reasons as described in Chapter 10.

Table B-1

Napa (all vineyards)	Whole Watershed (ac)	Downstream Municipal Reservoirs (ac)
Property area	133,100	99,800
Planted area ≤ 5% slope	28,400	26,800
Planted area > 5% slope	16,800	13,100
Sonoma (all vineyards)		
Property area	28,600	28,600
Planted area	Not available	Not available
Napa(≥ 5 acres planted)	Whole Watershed (ac)	Downstream Municipal Reservoirs (ac)
Property area	89,900	68,900
Planted area ≤ 5% slope	25,800	25,500
Planted area > 5% slope	15,000	12,200
Napa (≥ 10 acre planted)	Whole Watershed (ac)	Downstream Municipal Reservoirs (ac)
Property area	76,000	59,700
Planted area ≤ 5% slope	24,000	23,700
Planted area > 5% slope	13,700	11,100

Table B-1 (continued)

Napa (≥ 40 acre property)	Whole Watershed (ac)	% of total
Property area	104,500	79
Planted area ≤ 5% slope	18,300	64
Planted area > 5% slope	13,200	79
Sonoma (≥ 40 acre property)		
Property area	25,100	88
Napa (≥ 40 acres planted)		
Property area	33,100	25
Planted area ≤ 5% slope	13,200	46
Planted area > 5% slope	7,600	45
2012 WDR waiver criteria		
Property area	66,600	50
Planted area ≤ 5% slope	17,300	61
Planted area > 5% slope	14,100	84

Appendix C. Notice of Preparation and Initial Study

Notice Date: July 7, 2014

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT AND CALIFORNIA ENVIRONMENTAL QUALITY ACT SCOPING MEETING

GENERAL WASTE DISCHARGE REQUIREMENTS FOR VINEYARD DISCHARGES IN THE NAPA RIVER AND SONOMA CREEK WATERSHEDS

NOTICE IS HEREBY GIVEN that the San Francisco Bay Regional Water Quality Control Board (Water Board), as the Lead Agency, is planning to prepare an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act of 1970 (CEQA), State CEQA Guidelines (California Code of Regulations CCR, Title 14, Div. 6, Chap. 3), and the State Water Resource Control Board's CEQA regulations (CCR, Title 23, Sections 3720-3782).

Project Title: General Waste Discharge Requirements for Vineyard Discharges in the Napa River and Sonoma Creek Watersheds

Project Location: The proposed project will apply to existing and future vineyard properties in the Napa River and Sonoma Creek watersheds as depicted on Figure 1, which meet certain criteria relative to size and slope (see Table 1 in the Initial Study).

Project Summary: The proposed project consists of the Water Board establishing General Waste Discharge Requirements (General WDRs) that regulate discharges of sediment and storm water runoff originating from vineyard properties located within the boundaries shown in Figure 1. The proposed General WDRs will require dischargers to assess, plan, and implement a suite of site-specific actions and best management practices targeted towards reducing erosion from:

- Vineyards and related facilities and road networks
- Gullies and shallow landslides, and
- Points of concentrated stormwater runoff.

The project is described in more detail under the Project Description section on page 6.

Purpose of the Notice of Preparation: This Notice of Preparation (NOP) serves to:

1) Solicit information on the scope of the environmental analysis for the proposed project, and
2) Notify the public and regulatory agencies that the Water Board will prepare a draft EIR to assess potential adverse environmental impacts that may result from implementing the proposed project.

SUBMISSION OF WRITTEN COMMENTS

The Water Board is requesting comments from the public and public agencies on the scope and content of the environmental information to be included in the EIR. For public agencies, the Board is interested in your views as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities, if any, in connection with the proposed project.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date, but no later than 30 days after receipt of this notice. Please send your response to the Water Board, as directed below, along with the name of a contact person, if you are a public agency.

In order to be fully considered, written comments focusing on the issues related to the environmental analysis for the proposed project must be received by **5:00 pm on Wednesday, August 6, 2014**. Written comments should be sent to the address below or by fax to (510) 622-2426.

San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, California, 94612-1482
ATTN: Anya Starovoytov

SCOPING MEETING

In order for the public and regulatory agencies to have an opportunity to submit comments on the scope of the EIR, a meeting will be held during the 30-day NOP scoping period. The date, time, and meeting location are as follows:

Scoping Meeting Date and Time	Scoping Meeting Location
Wednesday, July 23, 2014 3:00 PM – 5:00 PM	Napa County Agricultural Commissioner's Office Ag/UC Conference Room Soscol Professional Plaza 1710 Soscol Avenue, Suite 3 Napa, California 94559

If you would like to request a reasonable accommodation for a disability, please contact Ms. Anya Starovoytov, of the Water Board, at astarovoytov@waterboards.ca.gov or (510) 622-2506.

PROJECT BACKGROUND AND HISTORY

The Napa River and Sonoma Creek watersheds contain an estimated 131,500 acres of vineyard properties, with greater than 59,000 acres planted in grapes. The Napa River and Sonoma Creek watershed and its tributaries are listed on the Clean Water Act Section 303(d) list as impaired by excess sediment, pathogens, and nutrients, meaning that these waters do not meet water quality standards.

Sediment total maximum daily loads (TMDLs), completed for each watershed, identified vineyards as one of several land uses that, if improperly managed, can discharge sediment and concentrated storm runoff that can adversely affect water quality and contribute to the sediment impairment. The sediment TMDLs are described in detail below.

Staff intends to recommend that the Water Board adopt General WDRs for vineyard properties located within these watersheds to control discharges of sediment and concentrated storm runoff. The proposed WDRs will implement the sediment TMDLs while also considering appropriate water quality objectives to protect the beneficial uses of these receiving waters. The designated beneficial uses of water for Napa River and Sonoma Creek include recreation (fishing, swimming, boating, etc.), fish migration and spawning, cold and warm freshwater habitats, wildlife habitat, and preservation of rare and endangered species. Beneficial uses for Napa River also include water supply (agricultural, municipal, and domestic) and navigation. Of these, the beneficial uses adversely affected by excess sediment consist of recreation (i.e. fishing), cold freshwater habitat, fish spawning, and preservation of rare and endangered species.

Napa River and Sonoma Creek TMDLs

In the 2000s, based on evidence of widespread erosion and concern regarding adverse impacts to fish habitat, the Water Board listed Napa River and Sonoma Creek as impaired by sedimentation. At roughly the same time period, both watersheds were also designated as impaired by excess pathogen and nutrient inputs. To address these impairments and to restore beneficial uses, the Water Board prepared pathogen and sediment TMDLs for both watersheds in the mid to late 2000s. In 2014, the Water Board approved the de-listing for the nutrient impairment (pending approval by the State Water Board and the U.S. Environmental Protection Agency).

The sediment TMDLs for these watersheds address water quality objectives for sediment, settleable materials, and population and community ecology that are impaired due to elevated concentrations of fine sediment in the bed of the Napa River, Sonoma Creek, and their tributaries. The TMDLs specify that greater than half of all sediment delivered to these

watersheds comes from anthropogenic (i.e., human-caused) activities associated with roads and road drainage systems, stream bed and bank erosion, vineyard surface runoff and erosion, and historical grazing. Across both watersheds, the TMDLs require an approximate 50 percent reduction in anthropogenic sediment inputs.

To achieve these sediment reductions, the TMDLs contain implementation plans that provide a framework for actions needed to meet water quality objectives and to restore beneficial uses. The proposed project, issuance of General WDRs, will regulate discharges associated with the vineyard source category, as identified in the TMDLs. The proposed General WDRs will also address potential nutrients and pesticides discharges from vineyards.

2012 Draft Conditional Waiver Initial Study and Proposed Mitigated Negative Declaration

In 2012, in an effort to regulate the vineyard source category identified in the sediment TMDLs, the Water Board staff circulated a draft Conditional Waiver of WDRs (Conditional Waiver) and a draft Initial Study/Mitigated Negative Declaration for public comment. However, based on the comments received and other regulatory considerations, the Water Board terminated the Conditional Waiver project in early 2013.

The proposed General WDRs are needed to regulate vineyard discharges and implement the above-referenced TMDLs. It is a new project for which the proposed EIR will be prepared.

EXISTING REGULATORY FRAMEWORK

Discharges from planted vineyards in the Napa River and Sonoma Creek watersheds have not yet been regulated by the Water Board either via WDRs, waivers of WDRs, or prohibitions. Certain aspects of vineyard erosion have, however, been regulated through County-level permit programs, which are discussed below. Many actions have already been taken to implement these local programs and have led to on the ground, physical changes to the environment.

Summary of Napa County Regulatory Program for Vineyards

The Napa County Planning Division regulates new vineyard facility development and vineyard replants. Its process is guided by 1) the Napa County Conservation Regulations, 2) the Napa County General Plan, and since 2000, 3) compliance with CEQA for any new vineyard development. These regulations establish the requirements and guidelines for preparing, reviewing, and approving Erosion Control Plans (ECPs) for grading and vegetation removal associated with new or replanted vineyards on slopes greater than five percent. New vineyards and replants on slopes of less than five percent are exempt from the ECP requirements.

The ECP process can follow one of two paths:

- Track I – Applies to new vineyards and those developed since 2000, and requires discretionary approval by the County (subject to CEQA review).
- Track II – Applies to vineyard replants and is a ministerial action, provided the replant falls within the existing vineyard footprint and there are no substantial changes to site drainage or layout. Most replanted vineyards proceed through the Track II process.

Track I requires hydrologic and erosion analyses to demonstrate that no net increases in soil loss and peak runoff will occur over pre-project conditions. Furthermore, the Conservation Regulations require stream setbacks for new vineyards that range from 35 to 150 feet, depending on stream designation and the slope of the adjacent land, as it exists at the time of the agricultural activity. Stream setbacks apply to all watercourses designated by a solid or dashed line on United States Geological Survey (USGS) maps, as well as any watercourse that has a) well-defined channel with a depth greater than four feet, b) banks steeper than 3:1, and c) contains hydrophilic or riparian vegetation. Replants, if completed within the original vineyard footprint, are not required to meet these setback criteria.

There are no requirements for retroactive erosion controls for existing vineyards. Existing vineyards are only required to submit ECPs at the time of replanting. New vineyard projects proposed on slopes exceeding 30 percent require the issuance of a County use permit, and new vineyards proposed on slopes exceeding 50 percent require a variance.

Summary of Sonoma County Regulatory Program for Vineyards

New vineyard development and replants in Sonoma County are guided by the Grading, Drainage, and Vineyard and Orchard Site Development Ordinance (VESCO). The Sonoma County Agricultural Commissioner's Office implements and enforces VESCO. Currently, the VESCO permit process does not require CEQA project analysis.

VESCO requires a permit for any grading, drainage improvement, or site development associated with new or replanted vineyards. VESCO permits are issued at two levels that take into account soil type, soil erosivity, and slope as follows:

- Level I – Applies to new vineyards or replants developed on slopes less than or equal to 10 to 15 percent and does not require ECP documentation or verification of project completion.
- Level II – Applies to new vineyards or replants on slopes greater than 10 or 15 percent and requires the project proponent to submit an ECP that is reviewed by the VESCO staff. VESCO staff conducts post-construction review to confirm that ECP design plans were followed and implemented appropriately.

Both Level I and Level II projects are required to adhere to the best management practices and standards described in the *Best Management Practices for Agricultural Erosion and Sediment Control* manual (Sonoma County Agricultural Commissioner's Office, 2010).

For Level II projects, the engineers preparing the vineyard plans are required to document pre-construction peak runoff calculations and demonstrate that post-construction conditions will not increase runoff from pre-construction conditions and will not modify pre-existing drainage patterns.

VESCO and the County General Plan establish stream setback requirements that range from 25 feet to 50 feet, depending on slope of the adjacent land, soil type, and stream designation.

New vineyards on slopes greater than 50% are prohibited and there are no retroactive erosion control requirements for vineyards constructed prior to VESCO. Existing vineyards are required to comply with VESCO at the time of replanting with more oversight occurring on properties containing highly-erodible soils.

The proposed General WDRs recognize the existence of county regulations, but is a separate program to implement the performance standards for vineyard properties in the Napa River and Sonoma Creek sediment TMDLs. The proposed General WDRs are described below.

PROJECT DESCRIPTION

Project Objectives

The fundamental objective of the proposed project is:

- To implement the Napa River and Sonoma Creek sediment TMDLs to achieve their vineyard discharge performance standards for sediment and storm runoff and to ultimately meet the TMDLs' sediment allocations and targets and restore properly functioning substrate conditions in channel reaches that provide habitat for anadromous salmonids.

Other objectives include the following:

1) To control discharges of sediment and/or storm runoff from vineyards into channel reaches that provide habitat for other native fishes;
2) To promote stream-riparian habitat protection and restoration;
3) To promote actions to restore fish passage at road crossings and streamflow diversions;
4) To promote management decisions and actions to maintain adequate in-stream temperature; and

5) To encourage voluntary conservation programs to assist vineyard owners/operators in meeting the requirements and objective of the proposed General WDRs.

Proposed General WDRs

The proposed General WDRs would regulate discharges from the following types of vineyard properties within the project area shown on Figure 1:

- All existing vineyard properties (including replants) where 5 acres-or-more are planted in vineyard, except for "low sediment delivery" properties that meet the exemption criteria (described below).
- All proposed vineyards of 5 acres or more and developed on slopes ≤ 30 percent, except for "low sediment delivery" properties or "high potential sediment delivery" properties (described below) ;
- Any facility, regardless of planted acreage, that is deemed by Water Board staff to discharge waste that could affect water quality and could be adequately regulated through the proposed General WDRs.

The proposed General WDRs would require controls for discharges from the vineyard facility and the roads located throughout the vineyard property. A vineyard facility includes all permanent, semi-permanent, or temporary physical features of a vineyard such as land, crops, drainage systems, roads, reservoirs, diversion structures/equipment, etc., that are established or maintained for the purpose of growing grapes. Discharges from on-site winery production facilities are not included in this permit.

The following "high potential sediment delivery" vineyard properties would not qualify for coverage under the proposed General WDRs, given their higher potential impact on the existing habitat and increased potential for soil erosion. These properties would instead be required to submit applications for individual WDRs:

- Any proposed vineyards that require a Timber Conversion Plan or Permit;
- Vineyards proposed on ridgetop[1] areas; or
- New vineyards on slopes of 30 percent or more.

"Low sediment delivery" vineyard properties are those that are not expected to contribute a significant amount of sediment. These properties would be exempt from the requirement to be permitted under proposed General WDRs by filing a notice of non-applicability, if they meet all of the following criteria:

[1] Ridgetop is defined as a relatively flat topographic divide above divergent and descending slopes where one or more of the descending slopes has a natural slope steeper than 50 percent for more than 50 feet in slope length.

- The vineyard is developed on a slope ≤ 5 percent;
- A stream setback in the form of a vegetated buffer is in-place (i.e., established) that is at least 35 feet wide, measured from top-of-bank, along the entire length of the Class I, II, III, or Class IV watercourse (as defined by California Forest Practice Rules) located on or adjacent to the vineyard property, and the vegetated buffer is effective with regard to removal of sediment and other pollutants from surface runoff; and
- There are no visible signs of erosion at any points of direct discharge (i.e., pipe outlets, ditch outlets, etc.) into waterways located on or adjacent to the vineyard property.

The distribution of existing vineyard properties across both watersheds, by slope categories, is shown in Figure 2. Existing vineyards in the 0 to 5 percent slope range may meet the "low sediment delivery" criteria described above. Existing vineyards on slopes greater than 30 percent are highlighted to identify areas that are expected to have a higher tendency for erosion, given the steep topography. Based on the proposed exemption criteria for "low sediment delivery" vineyard properties, it is anticipated that approximately 38,000 acres of existing vineyards could be eligible for enrollment in the General WDRs within the Napa River watershed. Approximately 24,000 acres of existing vineyards could be eligible for enrollment within Sonoma Creek watershed.

Proposed performance standards for the General WDRs are summarized below.

Vineyard Performance Standard

Vineyard owners/operators would be required to complete a Farm Water Quality Plan (Farm Plan) that describes existing conditions and best management practices on their vineyard property. The Farm Plan would include an evaluation and assessment of road networks on a property-wide scale (beyond the planted vineyard). The Farm Plan must include documentation of nutrient and pest management practices as well as a summary of all existing or potential erosional features that may be contributing sediment into adjacent waterways.

Surface Erosion Performance Standard

Based on the above assessment, the vineyard owner/operator would be required to implement a suite of appropriate best management practices to protect soil from erosion, prevent excessive rates of sediment delivery from surface erosion of vineyards and associated road networks, and effectively attenuate storm runoff (described below). Rates of sediment delivery are excessive when the predicted soil loss rate exceeds the tolerable soil loss rate (T), as defined in the Universal Soil Loss Equation or Revised Universal Soil Loss Equation (USDA-ARS, http://www.ars.usda.gov/Research/docs.htm?docid=6010). The effectiveness of these actions would be required to be evaluated by field inspection, visual observation and, in some cases,

calculating soil loss rates. Calculations completed as part of the Napa or Sonoma County vineyard erosion permit processes may be acceptable to meet some of these requirements.

Vineyard owners/operators would be required to maintain photo documentation to confirm that selected best management practices are working as designed, are being maintained, and to document any new water quality-related issues that arise. Annual reporting to the Water Board would be required.

Road Performance Standard

The TMDLs require control of road-related sediment delivery to receiving waters. The proposed General WDRs would require a road network assessment, at a property-wide scale, to identify points of discharge from roads and to assess road conditions. The survey would identify all locations where roadways have a potential to discharge sediment directly into a waterway (or a ditch that conveys water to a waterway) and any on-site culverts and stream crossings. Following the survey, the vineyard owner/operator would be required to develop and implement a prioritization scheme to reduce or eliminate direct discharges from roads using best management practices so that no more than 25 percent[2] of on-site roads are directly connected to a waterway within a 20-year timeframe. An annual compliance form would be required to document annual actions taken to address road-related sediment delivery. In addition, in the vicinity of culverts, critical dips and trash racks would be required to be installed, where appropriate, in order to avoid potential culvert failure due to debris clogging and/or stream diversion.

Unstable Areas and Stormwater Runoff Performance Standard

Vineyard owners/operators would be required to assess their property and on-site or adjacent streams to identify unstable areas such as gullies, mass wasting (e.g., landslides, rock fall, mud flows, etc.), and bank erosion that have resulted from past or current roads or vineyard facility operations. The owners/operators would then be required to implement best management practices to accelerate natural recovery and prevent human-caused increases in sediment delivery from unstable areas.

In addition to controlling surface erosion, vineyard owners/operators would be required to effectively attenuate significant increases in storm runoff, so that the runoff from vineyards shall not cause or contribute to downstream increases in rates of bank or bed erosion. Evidence of active down-cutting or head-cutting, and/or anomalous patterns or intensity of bank erosion (e.g., extensive bank erosion along one or both banks), at or near the point of discharge or in the first

[2] Road assessments previously performed in the Napa River and Sonoma Creek watersheds indicate that approximately 50 percent of roads are directly connected to waterways. Reducing the length of connected roads by half (to 25 percent) is expected to meet the sediment TMDL reduction goal and numeric performance standard of 500 cubic yards per mile of road over the 20-year implementation period (i.e. by 2028 and 2029 for Sonoma Creek and Napa River, respectively).

downstream response reach will be interpreted to indicate that the upstream vineyard may be contributing to damaging increases in bed and/or bank erosion.

Nutrient and Pesticide Stormwater Runoff Performance Standard

The proposed General WDRs would require an assessment of pesticide and nutrient storage, mixing, and application practices and require actions to minimize potential discharges of pesticides and nutrients to receiving waters from vineyards as described in Table 2 of the IS.

Stewardship Tier

The Water Board is considering establishing a "Stewardship Tier" for permittees who have completed all BMPs and demonstrate continued compliance with the General WDRs. The Stewardship Tier may include reduction in reporting requirements or a certificate being issued by the Water Board to vineyard owners/operators with an exceptional compliance record.

Anticipated Compliance Actions

A suite of best management practices are expected to be implemented on vineyard properties throughout Napa and Sonoma Counties in order to comply with the performance criteria for the General WDRs, as described above. Anticipated compliance actions that implicate possible environmental effects are summarized on Table 2 of the IS. Due to the local regulations described above, many of these best management practices have already been implemented on the ground and are part of the existing setting.

PROBABLE ENVIRONMENTAL EFFECTS

The purpose of the EIR process is to analyze, through a public process, the potentially significant impacts associated with the proposed project, to identify potentially feasible mitigation measures, and to identify and evaluate a range of reasonable alternatives to the proposed project. Considered alternatives should be feasible, attain most of the project objectives, and avoid or substantially lessen any of the significant adverse effects of the project.

The primary impacts of concern for the EIR are anticipated to include but not be limited to:

- Air Quality
- Biological Resources
- Cultural Resources
- Greenhouse Gas Emissions
- Hydrology and Water Quality

The attached Initial Study provides an initial evaluation of potential environmental impacts from the proposed General WDRs. The environmental analysis may determine that the proposed project would not impact or have significant impacts to many of these areas. However, if any significant adverse environmental impacts are identified through this environmental analysis, feasible mitigation measures to avoid and/or minimize the impacts will be identified and will be required as part of General WDRs.

PROJECT ALTERNATIVES

The Water Board has developed three preliminary alternatives to the proposed project for consideration in the EIR. The alternatives that may be considered include:

1) No Project Alternative – This alternative consists of the existing regulatory system for vineyard waste discharges, without approval of the proposed project.

2) Project Scope Reduction Alternative – This alternative reduces the amount of discharges to be regulated by General WDRs by modifying the eligibility criteria for vineyard properties from 5 to 10 planted acres.

3) Project Scope Reduction Alternative – This Alternative reduces the amount of discharges to be regulated by the General WDRs by modifying the eligibility criteria for vineyard properties to exclude all vineyard areas that drain into municipal on-stream reservoirs.

AGENCIES THAT MAY USE THIS EIR

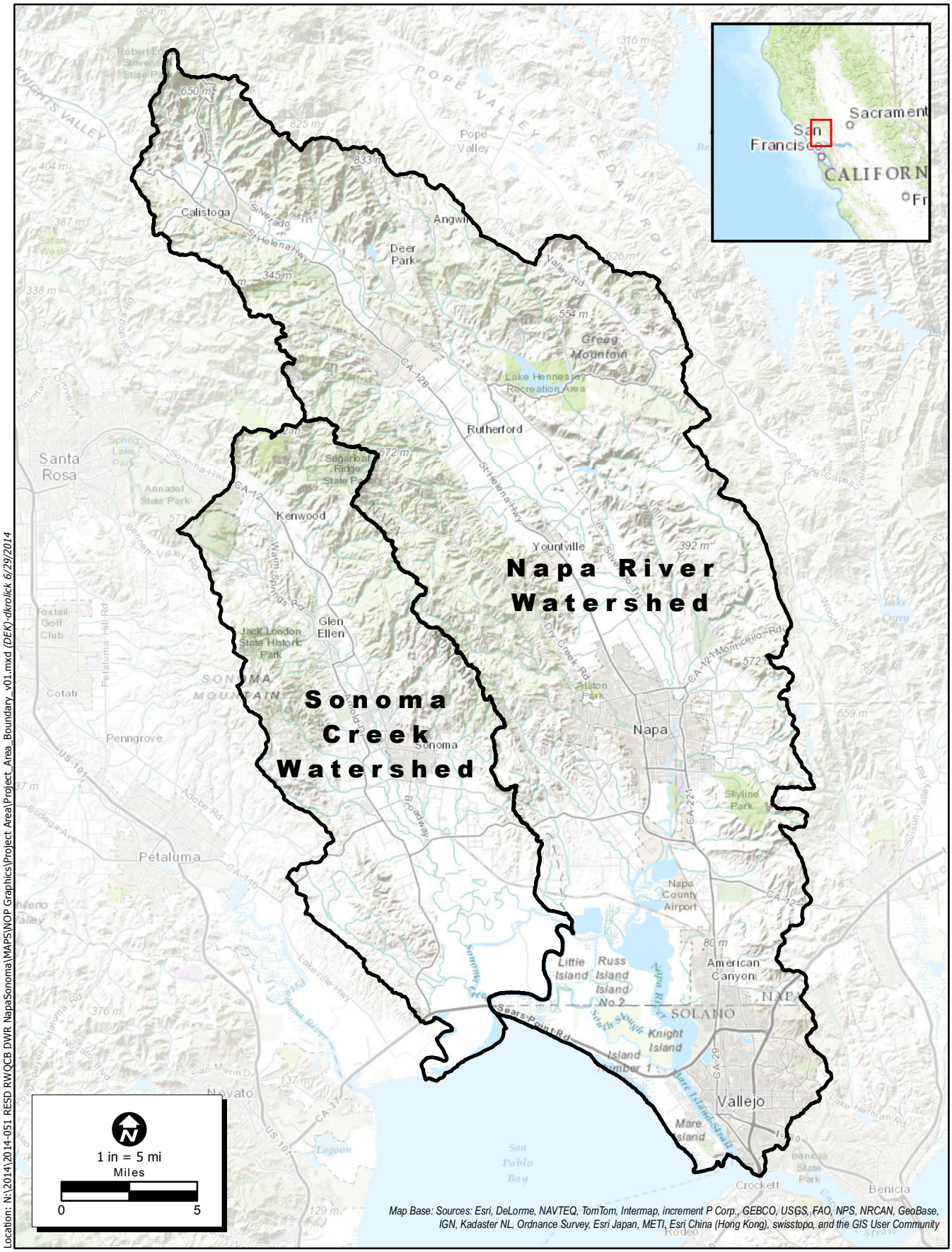
The EIR may be used by the California Department of Fish and Wildlife for streambed alteration agreements and the State Water Resources Control Board or Regional Water Board for 401 Certifications for compliance actions implemented pursuant to the proposed General WDRs.

QUESTIONS AND ADDITIONAL INFORMATION

General questions about this NOP should be directed to Anya Starovoytov at (510) 622-2506 or astarovoytov@waterboards.ca.gov.

Attachments

Figure 1 – Project Area Boundary
Figure 2 – Existing Vineyard Properties
Attachment 1 – Initial Study



Location: N:\2014\2014-051 RESD RWQCB DWR NapaSonoma\MAPS\NOP Graphics\Project Area\Project_Area_Boundary_v01.mxd *(DEK)-dkrolick 6/29/2014*

Figure 1. Project Area Boundary, Notice of Preparation for Environmental Impact Report, General WDRs for Vineyards in Napa River and Sonoma Creek Watersheds

2014-051 WRD for Napa River and Sonoma Creek

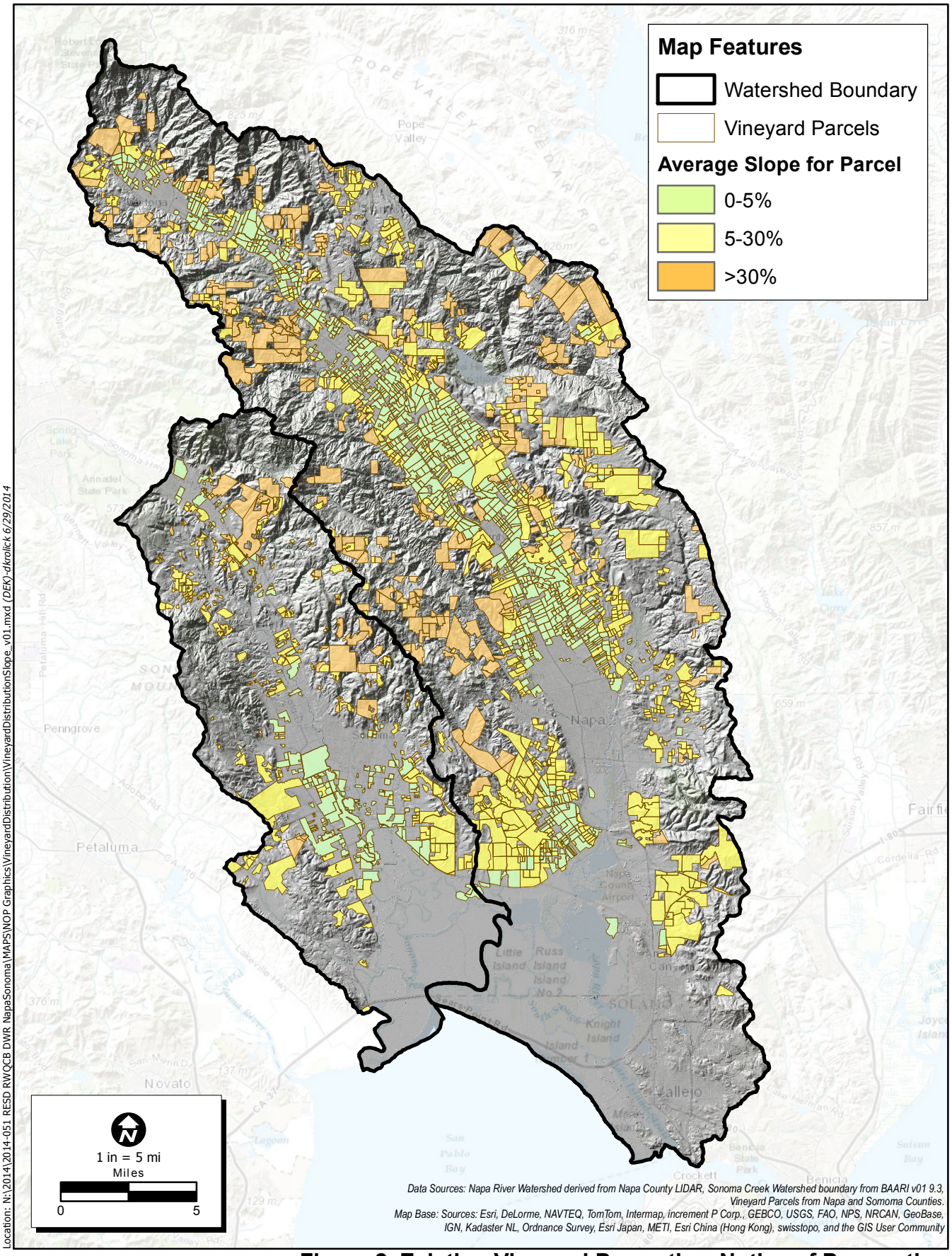


Figure 2. Existing Vineyard Properties, Notice of Preparation for Environmental Impact Report, General WDRs for Vineyard in Napa River and Sonoma Creek Watersheds

2014-051 WRD for Napa River and Sonoma Creek

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

INITIAL STUDY

GENERAL WASTE DISCHARGE REQUIREMENTS FOR VINEYARD DISCHARGES IN THE NAPA RIVER AND SONOMA CREEK WATERSHEDS

PREPARED BY:

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

July 07, 2014

(This page intentionally left blank)

TABLE OF CONTENTS

1. PROJECT BACKGROUND AND HISTORY 1

2. INTRODUCTION 2

3. SUMMARY 5

4. PROJECT OBJECTIVES AND DESCRIPTION 8

5. EXISTING CONDITIONS 17

6. ENVIRONMENTAL IMPACT ANAYLSIS 21
I. AESTHETICS 30
II. AGRICULTURE AND FOREST RESOURCES 33
III. AIR QUALITY 36
IV. BIOLOGICAL RESOURCES 38
V. CULTURAL RESOURCES 40
VI. GEOLOGY AND SOILS 42
VII. GREENHOUSE GAS EMISSIONS 45
VIII. HAZARDS AND HAZARDOUS MATERIALS 46
IX. HYDROLOGY AND WATER QUALITY 49
X. LAND USE AND PLANNING 52
XI. MINERAL RESOURCES 58
XII. NOISE 59
XIII. POPULATION AND HOUSING 62
XIV. PUBLIC SERVICES 63
XV. RECREATION 65
XVI. TRANSPORTATION/TRAFFIC 66
XVII. UTILITIES AND SERVICE SYSTEMS 69
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE 71

REFERENCES, PERSONS CONTACTED, AND REPORT PREPARERS 73

TABLES

Table 1. Summary of General WDRs Eligibility, Exclusion, and Exemption Criteria 4

Table 2. Likely Compliance Actions and Types of Physical Environmental Changes 12

Table 3. Existing Sediment Inputs to Channels in the Napa River Watershed Downstream of Major Dams 18

Table 4. Existing Sediment Inputs to Channels in the Sonoma Creek Watershed 18

Table 5. Acreage of Vineyard Parcels in the Napa River and Sonoma Creek Watersheds and Percentage Certified under Fish Friendly Farming (Napa Green) Program 19

Table 6. Beneficial Uses for the Napa River, Sonoma Creek and their tributaries 51

Table 7. Napa County Water-Related General Plan Policies 54

Table 8. Sonoma County Water-related General Plan Policies 56

FIGURES

Figure 1. Project Area Boundary 24

1. PROJECT BACKGROUND AND HISTORY

San Francisco Bay Regional Water Quality Control Board (Water Board) staff intends to recommend that the Water Board adopt General Waste Discharge Requirements (General WDRs) for vineyard discharges located in the Napa River and Sonoma Creek watersheds (Figure 1). These watersheds contain an estimated 141,400 acres of vineyard properties, with greater than 69,000 acres planted in grapes, from which there are or may be discharges of sediment and concentrated storm runoff that affect water quality.

The General WDRs would regulate discharges from vineyard properties in order to achieve the vineyard discharge performance standards for sediment and storm runoff set forth in the sediment total maximum daily loads (TMDLs) in the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan). Achieving these performance standards would ultimately meet the numeric targets and load allocations identified in the *Sonoma Creek Sediment TMDL* and the *Napa River Sediment TMDL*, adopted by the Water Board on September 8, 2010 and September 9, 2009, respectively. The U.S. Environmental Protection Agency (EPA) subsequently approved these TMDLs on December 10, 2010, and January 21, 2011, respectively.

The sediment TMDLs address water quality objectives for sediment, settleable materials, and population and community ecology that have been impaired due to elevated concentrations of fine sediment in the bed of the Napa River, Sonoma Creek, and their tributaries. The Water Board found that greater than half of all sediment delivered to streams in these watersheds comes from several land use categories, including:

a) Vineyard operations (erosion from vineyard surface, private roads, gullies and shallow landslides and concentrated storm runoff)
b) Grazing operations (erosion from pasture lands, private roads, and gullies and landslides)
c) Rural lands (erosion from private roads and gullies and shallow landslides)
d) Parks, open space, and municipal public works, which include public roads and related infrastructure (erosion from public trails and roads and gullies and shallow landslides).

The TMDLs contain implementation plans that provide a framework for actions needed to restore beneficial uses and to achieve an approximate 50 percent reduction in human-caused sediment inputs, across both watersheds, from the four major sediment source categories identified above. The proposed General WDRs are part of implementing the TMDLs.

2. INTRODUCTION

This Initial Study (IS) has been prepared pursuant to the California Environmental Quality Act of 1970 (CEQA), and State CEQA Guidelines (California Code of Regulations CCR, Title 14, Div. 6, Chap. 3) and the State Water Resources Control Board's CEQA regulations (CCR, Title 23, Section 3720 -3782). The Lead Agency for the project, as defined by CEQA, is the California Regional Water Quality Control Board, San Francisco Bay Region (Water Board).

Improperly managed vineyard operations can pose threats to surface and groundwater and stormwater runoff may result in soil erosion and contribute excess sediment to nearby streams. Runoff may also exhibit the potential to carry additional pollutants adhered to soil particles, such as agricultural pesticides and fertilizers to receiving waters.

The proposed project consists of establishing a regulatory mechanism, in the form of General WDRs, to regulate sediment discharges and to effectively attenuate significant increases in storm runoff from existing, replanted, and future vineyard properties in the Napa River and Sonoma Creek watersheds that meet certain criteria (Table 1).

The project is consistent with the State Water Resources Control Board's 2004 Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy), which requires that all sources of nonpoint source pollution be regulated through waste discharge requirements (WDRs), waivers of WDRs, and/or prohibitions. The proposed project is also consistent with requirements contained in the Basin Plan, including the TMDLs completed for sediment in the Napa River and Sonoma Creek.

This IS analysis considers the potential environmental impacts of the General WDRs including:

- Implementation of best management practices (BMPs) and changes in vineyard operations that may be employed by landowners/operators to comply with the General WDRs.
- Environmental changes resulting from long-term compliance with the General WDRs.

All potential impacts of the General WDRs are evaluated relative to the existing physical conditions (i.e. "baseline conditions") described in the Existing Setting section below. The types of on-the-ground actions that would be undertaken by landowners/operators subject to the General WDRs would be consistent with commonly used and effective vineyard BMPs that have already been employed in both watersheds. The potential environmental impacts of discharges from vineyard properties that are not eligible for coverage under the General WDRs are not evaluated in this IS because they are not part of the project. Vineyard dischargers who are not eligible for coverage under the General WDRs and who must apply for individual WDRs would be subject to CEQA.

For the purpose of this IS and the proposed General WDRs, the term “vineyard property” includes the vineyard facility as well as all roads on the property. The “vineyard facility” includes the permanent, semi-permanent, or temporary physical features of a vineyard, such as land, crops, drainage systems, roads, reservoirs, diversion structures/equipment, etc., that are established or maintained for the purpose of growing grapes. The vineyard facility does not include winery facilities subject to an industrial stormwater permit or other WDRs or conditional waivers of WDRs.

For the purpose of this IS and the proposed General WDRs, a “landowner/operator” is defined as a landowner and/or operator of a vineyard property meeting the size and slope thresholds (defined in Table 1) in the proposed General WDRs in the Napa River or Sonoma Creek watersheds.

Table 1. Summary of General WDRs Eligibility, Exclusion, and Exemption Criteria

Site Type	General WDRs Definition	Covered by General WDRs	Not covered by General WDRs	Exempted from General WDRs	Excluded from General WDRs[1]
		Requirement	***Requirement***	***Requirement***	***Requirement***
		Submit a Notice of Intent to seek coverage under the General WDRs and comply with requirements of the General WDRs	*Not required to seek coverage under the General WDRs*	*Submit a Notice of Non-Applicability and provide stream setback documentation*	*Submit a Report of Waste Discharge to seek coverage under individual WDRs*
Small Vineyard	Vineyard < 5 planted acres		**X**[2]		
New and Existing Vineyards	Vineyards ≥ 5 planted acres	**X**[3]			
Flat Land with Stream Setbacks and No Erosion	Vineyards with slopes of ≤ 5 percent with established stream setbacks and no evidence of erosion at points of facility discharge as described in the Notice of Preparation			**X**	
Forest to Vineyard Conversions	Any proposed vineyard that requires a Timber Conversion Plan/Permit				**X**
New Steep Slope Vineyards	Proposed vineyards on slopes > 30				**X**
New Ridgetop Vineyards	Any proposed vineyard developed on a flat topographic divide above divergent and descending slopes where one or more of the descending slopes has a natural slope steeper than 50 percent for more than 50 feet in slope length				**X**

[1] Any vineyard, regardless of site type, that cannot or fails to meet the requirements of the General WDRs would be excluded from the General WDRs and would be required to submit a report of waste discharge to seek coverage under individual WDRs.

[2] Any vineyard, regardless of size, that is deemed by Water Board staff to discharge wastes that could affect water quality may be regulated through the proposed General WDRs, or, depending on site conditions, may be required to submit a report of waste discharge to seek coverage under individual WDRs.

[3] With the exception of those vineyards that meet the definition for forest to vineyard conversions, new steep slope vineyards, or new ridgetop vineyards.

3. SUMMARY

Project Summary

The proposed General WDRs would implement the Napa River and Sonoma Creek sediment TMDLs with the overarching goals of reducing sediment and other nonpoint source pollutant discharges from vineyard properties and protecting and enhancing beneficial uses of these waterways, including the protection of anadromous fish habitat.

The proposed General WDRs would regulate discharges from the following types of vineyard properties within the project area shown on Figure 1:

- All existing vineyard properties (including replants) where 5 acres or more are planted in vineyard, except for "low sediment delivery" properties that meet the exemption criteria (as described below);
- All proposed vineyards of 5 acres-or-more, developed on slopes ≤ 30 percent, except for "low sediment delivery" properties or "high potential sediment delivery" properties (as defined below);
- Any vineyard property, regardless of planted acreage, that is deemed by Water Board staff to discharge waste that could affect water quality and could be adequately regulated through the proposed General WDRs.

The proposed General WDRs would require controls for discharges from the vineyard facility and the roads located throughout the vineyard property. A vineyard facility includes all permanent, semi-permanent, or temporary physical features of a vineyard such as land, crops, drainage systems, roads, reservoirs, diversion structures/equipment, etc., that are established or maintained for the purpose of growing grapes. Discharges from on-site winery production facilities are not included in this permit.

The following "high potential sediment delivery" vineyard properties would not qualify for coverage under the proposed General WDRs, given their higher potential impact on the existing habitat and increased potential for soil erosion. These properties would instead be required to submit applications (i.e., reports of waste discharge or ROWDs) for individual WDRs:

- Any proposed vineyards that require a Timber Conversion Plan or Permit;
- Vineyards proposed on ridgetop[1] areas; and
- New vineyards on slopes of more than 30 percent.

"Low sediment delivery" vineyard properties are those that are not expected to contribute

[1] Ridgetop is defined as a relatively flat topographic divide above divergent and descending slopes where one or more of the descending slopes has a natural slope steeper than 50 percent for more than 50 feet in slope length.

a significant amount of sediment. These properties would be exempt from the requirement to be permitted under proposed General WDRs by filing a notice of non-applicability, if they meet all of the following criteria:

- The vineyard is developed on a slope ≤ 5 percent; and
- A stream setback in the form of a vegetated buffer is in-place (established) that is at least 35 feet wide, measured from top-of-bank, along the entire length of the Class I, II, III, or Class IV watercourse (as defined by California Forest Practice Rules) located on or adjacent to the vineyard property, and the vegetated buffer is effective with regard to removal of sediment and other pollutants from surface runoff; and
- There are no visible signs of erosion at any points of direct discharge (i.e. pipe outlets, ditch outlets, etc.) into waterways located on or adjacent to the vineyard property.

The General WDRs would require the landowners/operators of eligible vineyard properties to:

- Seek coverage under the General WDRs by submitting a Notice of Intent (NOI) to comply to the Water Board
- Develop a Farm Water Quality Plan
- Implement and maintain BMPs and other improvements as specified in the Farm Water Quality Plan to meet the requirements of the General WDRs
- Conduct vineyard property site inspections and compliance monitoring
- Submit an Annual Compliance Form to the Water Board

This IS evaluates the environmental impacts of physical changes resulting from likely actions to comply with the proposed General WDRs that, over time, would result in reduction in erosion, sedimentation, and storm runoff from vineyard properties. These changes will occur gradually as landowners/operators continue to implement BMPs, in increasing numbers and on a more watershed-wide basis. The likely compliance actions and possible associated changes to the physical environment are summarized in Table 2.

As more fully discussed in the response to the IS checklist questions, adoption of the General WDRs are intended to result in:

- Improvements to the environment including reductions in fine sediment input to channels and enhancement of fish habitat conditions
- Implementation of some BMPs that may have the potential for associated short-term physical changes to the environment during their construction phases, but no long-term, permanent changes in land use, community structure, pollution, or public services

- No increases in stormwater runoff rates above existing conditions, or any other long term adverse environmental impacts

Summary of Impacts and Mitigation Measures

The proposed General WDRs would result in increases in the use of BMPs and construction of structural controls (such as cover crops, drainage facilities, erosion control facilities, and stormwater runoff controls) to meet water quality requirements. Implementation of BMPs could result in short-term impacts related to construction activities (grading, vegetation removal, stockpiling soils, and mobilizing heavy equipment).

Based on existing available information and evidence provided in this IS, compliance with the proposed General WDRs would result in "Less Than Significant" or "No Impact" in the following CEQA topic areas:

- Aesthetics
- Agriculture and Forest Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation/Traffic
- Utilities and Service Systems

Based on this IS, the EIR for the proposed General WDRs will cover the following CEQA topic areas due to the potential for significant environmental impacts:

- Air Quality
- Biological Resources
- Cultural Resources
- Greenhouse Gas Emissions
- Hydrology and Water Quality
- Mandatory Findings

4. PROJECT OBJECTIVES AND DESCRIPTION

The project is the proposed adoption of the General WDRs for discharges from vineyard properties that meet the eligibility requirements in Table 1 in the Napa River and Sonoma Creek watersheds (Figure 1). The fundamental objective of the General WDRs is as follows:

- To implement the Napa River and Sonoma Creek sediment TMDLs to achieve their vineyard discharge performance standards for sediment and storm runoff and to ultimately meet the TMDLs' sediment allocations and targets and restore properly functioning substrate conditions in channel reaches that provide habitat for anadromous salmonids.

Other objectives include the following:

1) To control discharges of sediment and/or storm runoff from vineyards into channel reaches that provide habitat for other native fishes;
2) To promote stream-riparian habitat protection and restoration;
3) To promote actions to restore fish passage at road crossings and streamflow diversions;
4) To promote management decisions and actions to maintain adequate in-stream temperature; and
5) To encourage voluntary conservation programs to assist vineyard owners/operators in meeting the requirements and objective of the proposed General WDRs.

The proposed performance standards for the General WDRs are summarized below.

Vineyard Performance Standards

Vineyard owners/operators would be required to complete a Farm Water Quality Plan that describes existing conditions and management practices on their vineyard property, including documentation of nutrient and pest management practices as well as a summary of all existing or potential erosional features that may be contributing sediment into on-site or adjacent waterways.

Surface Erosion Performance Standard

Based on the above assessment, the vineyard owner/operator would be required to implement a suite of appropriate BMPs to protect soil from erosion, prevent excessive rates of sediment delivery from surface erosion of vineyards and associated road networks, and effectively attenuate storm runoff (described below). Rates of sediment delivery are excessive when the predicted soil loss rate exceeds the tolerable soil loss rate (T), as defined in the Universal Soil Loss Equation or Revised Universal Soil Loss

Equation (USDA-ARS, http://www.ars.usda.gov/Research/docs.htm?docid=6010). The effectiveness of these actions would be required to be evaluated by field inspection, regular visual observation, and photo documentation. Annual compliance would be required to document annual actions taken to address potential sediment losses from the vineyard.

Road Performance Standard

The TMDLs require control of road-related sediment delivery to receiving waters. The proposed General WDRs would require a property-wide road network assessment to identify points of discharge from roads and to assess road conditions. The survey would identify all locations where roadways have a potential to discharge sediment directly into a waterway (or a ditch that conveys water to a waterway) and locations of any on-site culverts and stream crossings. Following the survey, the vineyard owner/operator would be required to develop and implement a prioritization scheme to reduce or eliminate direct discharges from roads using best management practices so that no more than 25 percent[2] of on-site roads are directly connected to a waterway. In addition, in the vicinity of culverts, critical dips and trash racks would be required to be installed, where appropriate, in order to avoid potential culvert failure due to debris clogging and/or stream diversion. Annual compliance would be required to document annual actions taken to address road-related sediment delivery.

Unstable Areas and Stormwater Runoff Performance Standards

Vineyard owners/operators would be required to assess their property and on-site or adjacent streams to identify unstable areas such as gullies, mass wasting (e.g., landslides, rock fall, mud flows, etc.), and bank erosion that have resulted from past or current roads or vineyard facility operations. The owners/operators would then be required to implement BMPs to accelerate natural recovery and prevent human-caused increases in sediment delivery from unstable areas.

In addition to controlling surface erosion, vineyard owners/operators would be required to effectively attenuate significant increases storm runoff, so that the runoff from vineyards shall not cause or contribute to downstream increases in rates of bank or bed erosion. Evidence of active down-cutting or head-cutting, and/or anomalous patterns or intensity of bank erosion (e.g., extensive bank erosion along one or both banks), at or near the point of discharge or in the first downstream response reach will be interpreted to indicate that the upstream vineyard may be contributing to damaging increases in bed

[2] Road assessments previously performed in the Napa River and Sonoma Creek watersheds indicate that approximately 50 percent of roads are directly connected to waterways. Reducing the length of connected roads by half (to 25 percent) is expected to meet the sediment TMDL reduction goal and numeric performance standard of 500 cubic yards per mile of road over the 20-year implementation period (i.e. by 2028 and 2029 for Sonoma Creek and Napa River, respectively).

and/or bank erosion.

Nutrient and Pesticide Stormwater Runoff Performance Standard

The proposed General WDRs would require an assessment of pesticide and nutrient storage, mixing, and application practices and require actions to minimize potential discharges of pesticides and nutrients to receiving waters from vineyards as described in Table 2 of the IS.

Farm Water Quality Plans may be developed and implemented in cooperation with technical assistance groups such as the Resource Conservation Districts (RCDs), Natural Resources Conservation Service (NRCS), U.C. Cooperative Extension as well as Fish Friendly Farming or other Water Board approved third-party groups.

Actions to Comply with General WDRs

Many vineyard properties in the Napa River and Sonoma Creek watersheds are already implementing a variety of erosion control BMPs in accordance with local regulations and with assistance provided by established technical assistance groups and voluntary conservation programs. Compliance with the General WDRs is expected to result in an increase in the implementation of many commonly used, effective, and conventional agricultural BMPs to control and reduce erosion and other discharges from vineyards properties and their associated road networks.

Measures that have proved problematic, such as intensive engineered drainages that concentrate flow and increase storm runoff, would not continue because they would violate the runoff control requirements identified in the proposed General WDRs. The objective of runoff controls is to sink, slow, and spread or capture runoff instead of concentrating flow or increasing storm flow velocities.

Although it is impossible to predict the exact locations or nature of actual BMPs that will be implemented as a result of the General WDRs, the types of on-the-ground actions that may occur would be consistent with those commonly used at existing vineyards within the Napa River and Sonoma Creek watersheds that are effective in reducing erosion and runoff.

This IS considers the potential environmental impacts associated with two categories of possible actions that include:

1. **Implementation of BMPs**. The General WDRs would result in implementation of numerous vineyard and road BMPs that will, over time, result in reduction in erosion, sedimentation, and storm runoff from vineyard properties. These changes will occur gradually as landowners/operators continue to implement BMPs, in increasing numbers and on a more watershed-wide basis. Table 2

includes likely compliance actions that consist of the most common and effective BMPs for minimizing and controlling the delivery of sediment and storm runoff (including roads and points of discharges to streams), nutrients, and pesticides to receiving waters. Site-specific BMPs would take into account existing farm operations, farm layout, identified sediment sources and their proximity and connection to water bodies, and the effectiveness of currently deployed BMPs.

2. **Control of Discharges from New Vineyards**. If approved by a local land use agency, future new vineyards meeting General WDRs eligibility criteria would need to be constructed and operated in compliance with the General WDRs requirements. All proposed vineyard development projects would need to demonstrate that the vineyard development would not result in increases in sediment delivery or runoff above existing conditions. It is important to note that the General WDRs does not authorize or permit new vineyards, vineyard expansions, or vineyard replants. Local land use agencies are the entities with authority to process applications for and authorize new vineyards, vineyard expansions, and vineyard replanting under their local regulations (general plan goals and policies, municipal codes and ordinances). These local regulations may require implementation of BMPs, issuance of permits (e.g. grading permits, erosion control permits, or use permits) or other approvals determined by the city or county. The local decision-making body would serve as lead agency under CEQA in connection with authorizing any new vineyard land uses.

A summary of the likely General WDRs implementation actions and the associated physical changes to the environment that may occur are listed in Table 2 at the end of this section, and are discussed in greater detail in the IS checklist and responses.

Implementation Phasing

The timing of implementation of BMPs will vary depending on the level of farm planning and water quality management at each property at the time that the General WDRs would be adopted. As discussed in the Baseline Conditions section below, a significant number of landowners/operators have completed farm plans and have already implemented effective BMPs that comply with the General WDRs. For those facilities, no additional BMPs will be needed beyond regular maintenance, effectiveness monitoring, and reporting.

For landowner/operators who have not initiated farm planning at adoption, the General WDRs would specify the timeline for completion of the Farm Water Quality Plan and its implementation.

Table 2. Likely Compliance Actions and Types of Physical Environmental Changes

Pollutant Category	Water Quality Objective or Sediment TMDL Performance Standard	Likely Compliance Actions	Possible Physical Environmental Changes
Surface Erosion from Vineyards	Control excessive rates[1] of sediment delivery to channels resulting from vineyard surface erosion	• Planting cover crops, conservation tillage, and applying composted mulch, straw, etc.	• Increase in the use of ground cover (annual/perennial cover crop, straw, mulch, etc.) between vineyard rows and potential reduction in tillage. Light discing, soil tillage, grading, and rolling to prepare seedbed. Cover crop maintenance may require mowing, discing, or crimping into soil with roller.
		• Repairing and installing engineered drainage facilities such as drop inlet and storm runoff diversion structures.	• Excavation to access pipes and inlets and installation of pipe, inlets, rock or other energy dissipating materials. Backfill, stabilize, and revegetate (using seeding or planting) disturbed area(s) after completion of earth-disturbing activity.
		• Inspecting and maintaining drainage facilities, inlets, storm runoff diversion structures, and storm runoff detention. basins	• Inspection may not result in physical changes to the environment but may result in disposal of accumulated debris.
		• Installing vegetated buffer strips.	• Minor grading to alter ground contours and to loosen and/or amend soil and the planting (via seed or established plants) of buffers.
		• Terracing of an existing or replanted hillside.	• Grading to alter ground contours, installation of pipe, drain inlets, trash racks, and rock or other energy dissipating materials at pipe outlets. Backfilling, stabilizing, and revegetating (using seeding or planting) disturbed area(s) after completion of earth-disturbing activity.
		• Locating staging areas for vineyard maintenance, harvest, and pruning away from streams.	• Adjustment in the location of routine vineyard staging areas and winterization of staging areas through revegetation, mulch, straw, etc.

[1] Rates of sediment delivery are "excessive" when the predicted soil loss rate exceeds the tolerable soil loss rate (T); calculations as described in the "Universal Soil Loss Equation" or Revised Universal Soil Loss Equation (RUSLE2) (refer to http://fargo.nserl.purdue.edu/rusle2_dataweb/RUSLE2_Index.htm for USLE and RUSLE2 methodology).

Pollutant Category	Water Quality Objective or Sediment TMDL Performance Standard	Likely Compliance Actions	Possible Physical Environmental Changes
Road-related sediment delivery	**Road**-related sediment delivery to channels less than or equal to 500 cubic yards per mile of **Road**[2] over the sediment TMDL implementation period	• Road segment relocation, construction, replacement, and/or retrofit road cut and fill slopes and road crossings, grading of roads and road crossings to install water bars, rolling dips, and critical dips.	• Mobilization of equipment (trucks and heavy equipment) to alter road drainage via out-sloping of road, modification of cut and fill of road banks, grading of road bed, and fill slope. Placement of native fill or imported fill to construct water bars, critical dips, rolling dips, and stable cut and fill slopes. Installation of trash racks to protect culvert inlets from blockage. Backfill, stabilize, and revegetate (using seeding or planting) disturbed area(s) after completion of earth-disturbing activity.
		• Repairing, replacing, or retrofit of undersized or improperly functioning culverts and installing ditch relief culverts.	• Use of hand-tools and trucks and heavy equipment to move soil to repair or replace culverts (metal or concrete pipe segments); construction of new, or the repair of existing stream crossings at fords or bridges. Installation of culvert in let trash racks. Grading, backfill, and stabilization of disturbed area(s) through the installation of stream bank protection materials such as willow wads, geo-textiles, and or rock.
		• Re-surfacing road prism to minimize soil loss and reduce peak and concentrated flows. Reduce the number (via road removal or decommissioning) of roads, and minimize the length of all-weather roads on the vineyard property.	• Mobilization of trucks and heavy equipment to stabilize the road surface via resurfacing with gravel, asphalt, etc. Winterization of road surfaces through soil amendment, seeding for grass cover or by installing gravel, etc. Decommissioning may involve the mobilization and use of trucks and heavy equipment to remove culverts, rip the road surface, remove unstable fills, and configure for long-term drainage via outsloping, installing water bars, ditch removal, etc. Backfill, stabilize, and revegetate (using seeding or planting) disturbed area(s) after completion of earth-disturbing activity.
		• Maintaining roads that service the vineyard facility (for example, vegetated avenues and equipment turn-arounds).	• Winterization of avenues and equipment turnarounds through soil amendment, seeding for grass cover, or planting.

[2] Reducing the length of **Hydrologically Connected Roads** by half will meet Napa River and Sonoma Creek sediment TMDL sediment reduction goals and numeric performance standard.

Pollutant Category	Water Quality Objective or Sediment TMDL Performance Standard	Likely Compliance Actions	Possible Physical Environmental Changes
Stormwater Runoff and Peak Flow Attenuation	Effectively attenuate significant increases in storm runoff, so that runoff from vineyards shall not cause or contribute to downstream increases in rates of bank or bed erosion	• Dispersal of surface runoff through the installation of energy dissipater facilities, rock level spreaders, pipe T-spreaders, and benches.	• Use of on-site materials or importation of rock and T-spreaders to construct features to disperse storm runoff. May involve minor excavation and fill in upland areas.
		• Installing sedimentation/detention basins.	• Mobilization and use of trucks and heavy equipment to remove vegetation and to excavate the area planned for the detention basin. Installation of pipes, valves, and inlet/outlet structures at detention basin. Backfill, stabilize, and revegetate (using seeding or planting) disturbed area(s) after completion of earth-disturbing activity.
		• Terracing, installing alternative vineyard design and/or drainage system at the time of replanting. Reducing the number of, or disconnecting, engineered drainages.	• Excavation and fill in upland areas using a range of equipment. May require installation of new pipe and removal of pipes and other drainage features that concentrate runoff. Backfilling, stabilizing, and revegetating (using seeding or planting) disturbed area(s) after completion of earth-disturbing activity. May reduce the footprint of area planted as vineyard.
		• Installation of cover crops and/or mulch	• Increase in the use of ground cover (annual/perennial cover crop, straw, mulch, etc.) at or near points of storm discharge to slow and spread runoff. Ground may require mobilization and use of farm equipment for light discing, soil tillage, grading, and rolling to prepare seedbed for grass cover. Cover crop maintenance may require mowing, discing, or crimping into soil with roller.
		• Re-establishing forest cover	• Mobilization and use of equipment to prepare the area for re-planting including raising and/or reducing grade (ground level) to achieve proper elevation. May involve invasive plant removal, earthmoving, discing, and amending soils in area of tree replanting and the installation of temporary fencing to protect the trees from foragers and installation of irrigation (for example drip irrigation) to provide water for trees until they are established. Disturbed areas between trees may require stabilization via application of mulch, straw, and/or planting with ground cover.

Pollutant Category	Water Quality Objective or Sediment TMDL Performance Standard	Likely Compliance Actions	Possible Physical Environmental Changes
Gullies and Shallow Landslides (unstable areas)	Accelerate natural recovery and prevent human-caused increases in sediment delivery from unstable areas	• Stabilizing unstable areas (i.e. headwater channels, gullies, and shallow landslides) by installing drainage improvements, re-contouring, or re-vegetating unstable areas through bio-technical methods, such as installing large woody debris, hard engineering via placement of boulders, and planting appropriate vegetation.	• Use of hand-tools and/or heavy equipment to excavate and repair unstable land masses. Grading to re-direct storm runoff. Installation of soil protection materials such as willow wads, geo-textiles, and or rock. Backfilling, stabilizing, and revegetation (using seeding or planting) of disturbed area(s) after completion of earth-disturbing activity.
		• Dispersal of runoff	• Excavation and fill in upland areas using a range of equipment. May require installation of new pipe and removal of pipes and other drainage features that concentrate runoff. Backfilling, stabilizing, and revegetating (using seeding or planting) disturbed area(s) after completion of earth-disturbing activity.
		• Re-vegetation	• Mobilization and use of equipment to prepare the area for re-planting including earthmoving, contouring, amending soils, planting of trees, shrubs, grass, and the installation of temporary fencing to protect the vegetation from foragers and installation of irrigation (for example drip irrigation) to provide water until vegetation is re-established. Disturbed areas between trees and/or shrubs may require stabilization via application of mulch, straw, and/or planting with ground cover.
Nutrients	Waters shall not contain bio-stimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.	• Avoiding fertilizer application methods that could result in over-application and nutrients in runoff.	• Reduced fertilizer use, targeted fertilizer use, alterations to drip irrigation systems, changes in cover crop management, or increased use of organic fertilizers.
		• Avoiding mixing, storing, or applying fertilizers in a manner that could result in excess nutrients being delivered to surface or groundwater.	• Construction of small structures such as mixing pads, berms, sheds, and small roofed structures to store, cover, and contain fertilizer.
		• Managing onsite irrigation systems to prevent fertilizers from entering surface and groundwater.	• Minor alteration of valves and pipes of the drip irrigation systems to prevent backflows of irrigation water.

Pollutant Category	Water Quality Objective or Sediment TMDL Performance Standard	Likely Compliance Actions	Possible Physical Environmental Changes
Pesticides	All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms	• Implementing Integrated Pest Management (IPM) practices including minimizing the application of pesticides when possible and only using approved products in accordance with applicable regulations and directions. • Avoiding mixing, storing or applying pesticides near groundwater wells, surface waters or in ways that could cause or contribute to receiving water toxicity.	• Reduced pesticide use and conversion to less toxic pest control methods. • Construction of small structures such as pads, sheds, berms, and roofed areas to store, cover, and contain pesticides.

5. EXISTING CONDITIONS

Environmental Setting

The Napa River watershed, which drains about 425 square miles, is located in the northern portion of the San Francisco Bay area and drains into San Pablo Bay. The 170 square mile Sonoma Creek watershed is located immediately west of the Napa River watershed and also drains into San Pablo Bay. The Napa River and Sonoma Creek watersheds are designated as impaired for excess sediment, nutrients and pathogens. The sediment TMDLs for these watersheds document the presence of excess fine sediment (sand, silt, and clay particles), incised stream channels, and diminished fisheries, specifically for anadromous steelhead and Chinook salmon.

Both TMDLs indicate that viticulture is the predominant land use in both valleys and is one of several major sources of fine sediment in the two watersheds. Vineyards make up most land cover in the valleys and are becoming more extensive on hillsides in some tributary watersheds. Vineyards may yield fine sediment and other pollutants through surface erosion, road runoff, unstable areas (such as gullies and landslides), and from excessive storm runoff.

Roadway networks, including both paved roads and unpaved roads, contribute fine sediment via direct erosion of the roadbed surface and inboard ditches. Surface erosion of the roadbed, caused by wind erosion, or formation of rills and gullies on the surface is common in these watersheds. Roads are either impervious (paved) or highly compact (unpaved) and they tend to generate large volumes of runoff. This runoff can cause erosion of the roadway's inboard ditch, hillslopes, and channels that receive this runoff. Bridges and culverts can also be a source of sediment. In locations were culverts are undersized or become blocked with sediment and debris, bank erosion may occur.

Historical and ongoing reduction in coarse sediment inputs (from hydrologic changes including large dams) plus the overall increase in runoff and peak annual flows from developments in the valleys have caused Napa River and Sonoma Creek and many of their tributaries to erode their bed and banks. These adjustments result in headcutting, gully and landslide formation, and channel incision (SFEI, 2012).

A description of existing conditions relative to each CEQA topic area is provided in the initial study checklist in the "background" discussion at the beginning of each environmental topic within Section 5, Environmental Impact Analysis, below.

Baseline Conditions

This environmental analysis considers potential environmental impacts of adoption of the proposed General WDRs. It considers actions that may be taken to comply with the General WDRs, beyond those actions that have already been implemented voluntarily or under existing local regulations.

The baseline conditions for the purpose of this environmental analysis include:

- Discharges from all existing vineyards in the Napa River and Sonoma Creek watersheds;
- Existing physical conditions, including BMPs that have already been implemented on the ground, as a result of policies, laws, and regulations of local cities and counties pertaining to vineyards, roads, vegetation removal, and stream setbacks; and
- Existing physical conditions as a result of existing permits, WDRs, and waivers of WDRs issued by the Water Board or the State Water Board (e.g. State Water Board Order 2009-0009-DWQ for Stormwater Discharges associated with Construction and other Land Use Activities).

Based on the sediment TMDL, an estimated 159,000 metric tonnes of fine sediment is delivered to the Napa River annually (Table 3). The smaller Sonoma Creek watershed produces an estimated 63,000 tons of fine sediment each year (Table 4). The estimated amount of fine sediment that is currently delivered to the Napa River and Sonoma Creek best represent baseline water quality and habitat conditions in the watersheds as it relates to adoption of the proposed General WDRs.

Table 3. Existing Sediment Inputs to Channels in the Napa River Watershed Downstream of Major Dams

Sediment Source	Mean Annual Sediment Delivery(metric tonnes[1]/year)
Surface erosion from Vineyards[2]	37,000
Roadway-related processes	55,000
Gullies and landslides	30,000
Channel Incision and bank erosion	37,000
TOTALS	**159,000**

[1]A metric tonne equals 1,000 kilograms and about 2,205 pounds
[2]Includes some grazing land (estimated to be a small fraction, less than 10 percent, of the total)

Table 4. Existing Sediment Inputs to Channels in the Sonoma Creek Watershed

Sediment Source	Mean Annual Sediment Delivery (tons[1]/year)
Surface erosion from Vineyards	7,600
Roadway-related processes	11,200

Landslides	900
Channel Incision and gullies	43,300
TOTALS	**63,000**

[1]A ton equals 2,000 pounds.

Physical conditions in portions of the watersheds have improved since adoption of the TMDLs as a result of early and ongoing voluntary farm water quality planning and implementation (Trso, 2011). The proposed General WDRs build upon these successful efforts. As of 2012, an estimated 25 percent of vineyards have already completed comprehensive farm plans (Table 5) through collaboration with local governments, RCDs/NRCS, the Farm Bureau, and other grower groups in the valleys. The Sonoma County Agricultural Commissioner, Napa County Planning Department, and the RCDs indicate that there are over 131,500 acres of productive vineyards in the Napa River and Sonoma Creek watersheds. Of these, a significant number (25,600 acres in Napa Valley and 2,900 in Sonoma Valley) are certified by Fish Friendly Farming (FFF) and Napa Green (in Napa County only). These estimates do not account for vineyard properties that are enrolled in FFF and not yet certified or properties that have implemented vineyard and road BMPs through other technical assistance programs, such as Napa and Sonoma RCDs. Therefore, the acreages and percentages of vineyards that have completed farm plans and have implemented management actions to reduced non-point source pollutants (Table 6), represent watershed minimums.

Table 5. Acreage of Vineyard Parcels in the Napa River and Sonoma Creek Watersheds and Percentage Certified under Fish Friendly Farming (Napa Green) Program

	Vineyard Parcels (acres)	**Area Planted in Vineyard (acres)**	**Total acres/ % Parcels FFF Certified**	**Total acres/ % Planted Vineyard FFF Certified**
Napa River Watershed	96,300	44,000	25,600 / 27 %	13,400 / 30 %
Sonoma Creek Watershed	35,200	15,300	2,900 / 8 %	1,500 / 10 %
TOTALS (both watersheds)	**131,500**	**59,300**	**28,500 / 22 %** average	**14,900 / 25 %** average

Note: All acreage is estimated based on a minimum vineyard size of five acres and totals are rounded to the nearest hundred acres.

Under Fish Friendly Farming, potential water quality impacts from vineyard property operations are evaluated through a site inspection and the preparation of comprehensive

farm plan that chronicles the inspection findings. Potential issues of concern to water quality are identified in the farm plan and are corrected through the implementation of proper, site-specific BMPs. These BMPs are comparable to those actions that will occur through landowner/operator compliance with the proposed General WDRs. To the extent that BMPs were implemented on vineyard properties prior to development of the General WDRs, these features and facilities are considered to be part of the baseline physical conditions.

In addition, several significant reach-wide river and riparian restoration projects, undertaken as a result of the sediment TMDLs, have led to improvements in channel condition and riparian habitat in the Napa River and Sonoma Creek watersheds. These include the voluntary collaborative restoration of the Napa River of the Rutherford reach (4.5 miles), the Oakville to Oak Knoll reach (9 miles), and Carriger and Nathanson creeks in Sonoma Valley. Furthermore, a fish passage barrier removal project at the Zinfandel Lane Bridge in Napa has increased habitat for anadromous fish.

Despite these improvements, the Napa River and Sonoma Creek remain impaired by excess fine sediment. The proposed General WDRs require implementation of vineyard operation and road BMPs that are intended to correct, over time, sediment and associated water quality impairments. Vineyards are not identified as a source of pathogens in the Napa River and Sonoma Creek Pathogen TMDLs (Water Board, 2006 a, 2006b).

6. ENVIRONMENTAL IMPACT ANAYLSIS

Initial Study
pursuant to the California Environmental Quality Act

A. *PROJECT DESCRIPTION*

1. Project title	**General WDRs for Vineyard Discharges in the Napa River and Sonoma Creek Watersheds**
2. Lead agency name and address	California Regional Water Quality Control Board, San Francisco Bay Region 1515 Clay Street, Suite 1400 Oakland, CA 94612
3. Contact person and phone number	Anya Starovoytov, Environmental Scientist (510) 622-2506 astarovoytov@waterboards.ca.gov
4. Project location	Napa River and Sonoma Creek watersheds, San Francisco Bay Region
5. Project sponsor's name and address	California Regional Water Quality Control Board, San Francisco Bay Region 1515 Clay Street, Suite 1400 Oakland, CA 94612
6. General plan designation	Not applicable
7. Zoning	Not applicable

8. Summary Description of Project:

The project is the proposed adoption of the General WDRs for vineyard discharges in the Napa River and Sonoma Creek watersheds to control discharges and comply with the implementation plans for the Napa River and Sonoma Creek Sediment TMDLs. The proposed General WDRs would specify requirements necessary to protect and restore beneficial uses in the Napa River and Sonoma Creek watersheds. These actions are consistent with the requirements of the NPS Policy. The General WDRs would require implementation of vineyard operation and road BMPs which are expected to result in water quality improvements.

The General WDRs would apply to discharges from vineyard properties in Napa River and Sonoma Creek watersheds that meet the proposed General WDRs eligibility criteria described in Table 1, above. They would require the landowners/operators of eligible vineyard properties to:

- Seek coverage under the General WDRs by submitting a Notice of Intent (NOI) to comply with the permit to the Water Board
- Develop a Farm Water Quality Plan
- Implement and maintain BMPs and other improvement projects as specified in the Farm Water Quality Plan to meet the General WDR requirements
- Conduct vineyard property site inspections and compliance monitoring
- Submit an Annual Compliance Form to the Water Board

9. Setting and surrounding land uses:

The proposed General WDRs would regulate discharges from certain vineyard properties throughout the Napa River watershed in Napa County, and throughout the Sonoma Creek watershed in Sonoma County.

Napa River Watershed. The Napa River watershed is located in the California Coast Ranges north of San Pablo Bay, covering an area of about 425 square miles (Figure 1). The main stem of the Napa River flows approximately 55 miles in a southeasterly direction though the Napa Valley before discharging to San Pablo Bay. Numerous tributaries enter the main stem from the mountains that rise abruptly on both sides of the valley.

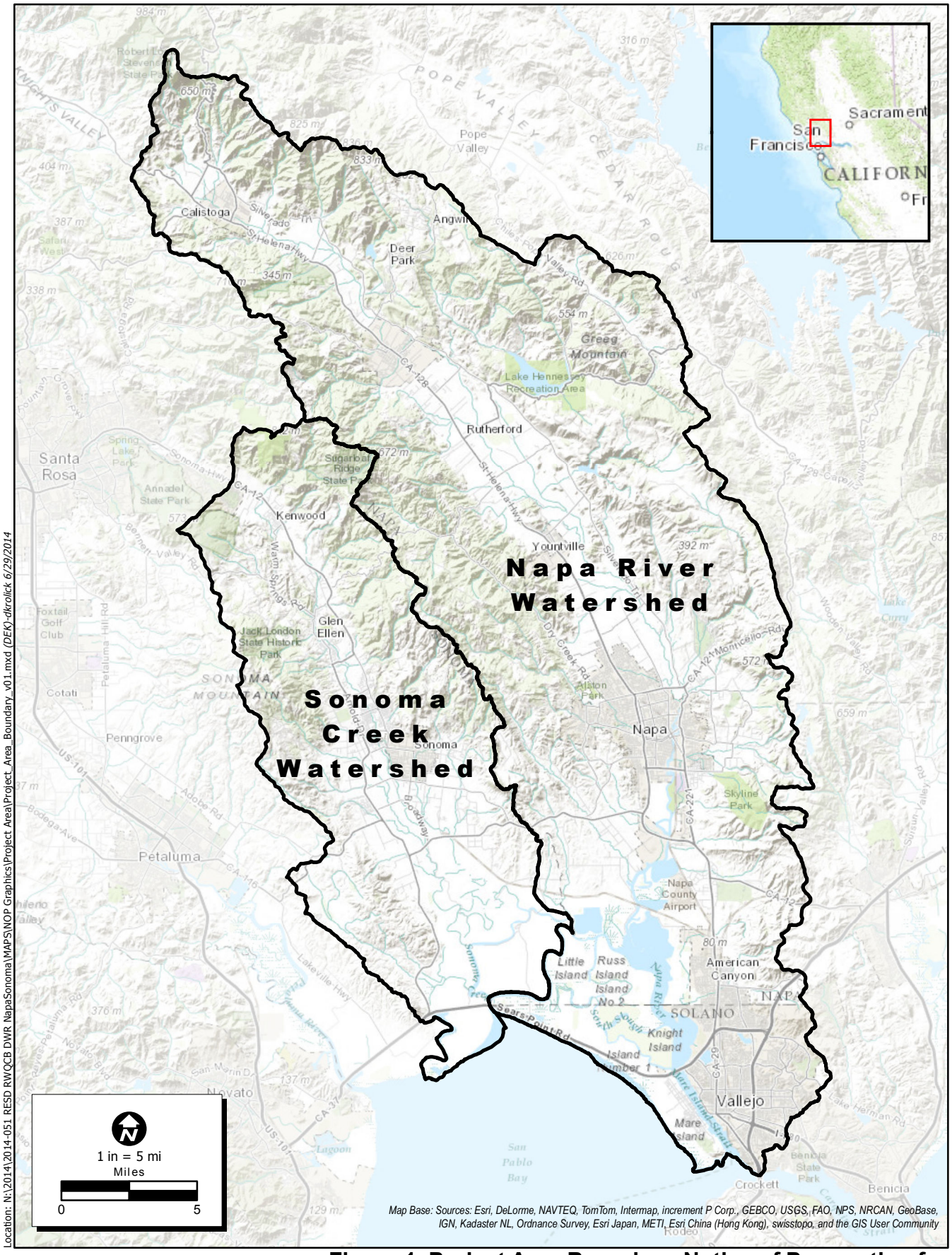
Major land cover types in the Napa River watershed are forest (approximately 35 percent), grassland/rangeland (23 percent), agriculture (19 percent), and developed land, including residential, industrial, or commercial uses (8 percent). Beneficial Uses, as defined by the Basin Plan include: agricultural supply; cold freshwater habitat; warm freshwater habitat; water contact recreation; non-contact water recreation; fish migration; municipal and domestic supply; preservation of rare and endangered species; fish spawning; warm freshwater habitat; and wildlife habitat. The Napa River watershed provides habitat for several aquatic species of concern, including steelhead trout and Chinook salmon.

Sonoma Creek Watershed. The Sonoma Creek watershed is located in the California Coast Ranges north of San Pablo Bay, covering an area of about 165 square miles (Figure 1). The mainstem of Sonoma Creek flows in a southeasterly direction from headwaters on Sugarloaf Ridge though the Sonoma Valley before discharging to San Pablo Bay. Numerous tributaries enter the main stem from the mountains that rise on both sides of the valley.

Major land cover types in the Sonoma Creek watershed are forest (approximately 30 percent), grassland/rangeland (20 percent), agriculture (30 percent), wetlands and sparsely vegetated-land (5 percent), and developed land, including residential, industrial, or commercial uses (15 percent). Beneficial Uses, as defined by the Basin Plan include: cold freshwater habitat; warm freshwater habitat; water contact recreation; noncontact water recreation; fish migration; preservation of rare and endangered species; fish spawning; warm freshwater habitat; and wildlife habitat. The Sonoma Creek watershed provides habitat for several aquatic special status species of concern, including steelhead trout and Chinook salmon.

10. Other public agencies whose approval is required:

No other public agency approvals are required for the proposed General WDRs.



Location: N:\2014\2014-051 RESD RWQCB DWR NapaSonoma\MAPS\NOP Graphics\Project Area\Project_Area_Boundary_v01.mxd *(DEK)-dkrolick 6/29/2014*

Figure 1. Project Area Boundary, Notice of Preparation for Environmental Impact Report, General WDRs for Vineyards in Napa River and Sonoma Creek Watersheds

2014-051 WRD for Napa River and Sonoma Creek

B. ***ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED***

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

[ ] Aesthetics	[ ] Agriculture and Forest Resources	[X] Air Quality
[X] Biological Resources	[X] Cultural Resources	[ ] Geology/Soils
[X] Greenhouse Gas Emissions	[ ] Hazards/Hazardous Materials	[X] Hydrology/Water Quality
[ ] Land Use/Planning	[ ] Mineral Resources	[ ] Noise
[ ] Population/Housing	[ ] Public Services	[ ] Recreation
[ ] Transportation/Traffic	[ ] Utilities/Service Systems	[X] Mandatory Findings of Significance

C. ***LEAD AGENCY DETERMINATION***

On the basis of this initial evaluation:

[ ] 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.

[X] 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, nothing further is required.

_____ _____

Signature Date

Bruce H. Wolfe

Executive Officer

D. EVALUATION OF ENVIRONMENTAL EFFECTS

The Environmental Checklist and discussion that follows is based on sample questions provided in the CEQA Guidelines (Appendix G) which focus on various individual concerns within 17 different broad environmental categories, such as air quality, cultural resources, land use, and traffic (and arranged in alphabetical order). The Guidelines also provide specific direction and guidance for preparing responses to the Environmental Checklist. Each question in the Checklist essentially requires a "yes" or "no" reply as to whether or not the project will have a potentially significant environmental impact of a certain type, and, following a Checklist table with all of the questions in each major environmental heading, citations, information and/or discussion that supports that determination. The Checklist table provides, in addition to a clear "yes" reply and a clear "no" reply, two possible "in-between" replies, including one that is equivalent to "yes, but with changes to the project that the Lead Agency has made to, no", and another "no" reply that requires a greater degree of discussion, supported by citations and analysis of existing conditions, threshold(s) of significance used and project effects than required for a simple "no" reply. Each possible answer to the questions in the Checklist, and the different types of discussion required, are discussed below:

Potentially Significant Impact. Checked if a discussion of the existing setting (including relevant regulations or policies pertaining to the subject) and project characteristics with regard to the environmental topic demonstrates, based on substantial evidence, supporting information, previously prepared and adopted environmental documents, and specific criteria or thresholds used to assess significance, that the project will have a potentially significant impact of the type described in the question.

Less Than Significant With Mitigation. Checked if the discussion of existing conditions and specific project characteristics, also adequately supported with citations of relevant research or documents, determine that the project clearly will or is likely to have particular physical impacts that will exceed the given threshold or criteria by which significance is determined, but that with the incorporation of clearly defined mitigation measures into the project such impacts will be avoided or reduced to less-than-significant levels.

Less Than Significant Impact. Checked if a more detailed discussion of existing conditions and specific project features, also citing relevant information, reports or studies, demonstrates that, while some effects may be discernible with regard to the individual environmental topic of the question, the effect would not exceed a threshold of significance which has been established by the Lead or a Responsible Agency. The discussion may note that due to the evidence that a given impact would not occur or would be less than significant, no mitigation measures are required.

No Impact. Checked if brief statements (one or two sentences) or cited reference materials (maps, reports or studies) clearly show that the type of impact could not be reasonably expected to occur due to the specific characteristics of the project or its location (e.g. the project falls outside the nearest fault rupture zone, or is several hundred feet from a 100-year flood zone, and relevant citations are provided). The referenced sources or information may also show that the impact simply does not apply to projects like the one involved. A response to the question may also be "No Impact" with a brief explanation that the basis of adequately supported project-specific factors or general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a basic screening of the specific project).

Impact Evaluation

This Initial Study considers the environmental impacts of physical changes to the environmental over existing conditions (i.e., baseline conditions) as described in the Project Description, above. Potential environmental impacts resulting from the proposed adoption of the General WDRs are discussed below and evaluated in the Initial Study checklist and responses. Long term, the goal of the proposed General WDRs is to achieve reductions in nonpoint source pollution, specifically fine sediment, to the Napa River and Sonoma Creek watersheds. Short term incremental physical changes to the environment may include:

- Increases in the implementation of non-point source pollution control BMPs
- Expansion of vegetated stream setbacks
- Permitting of discharges from future new vineyards approved by local land use authorities

Adoption of the General WDRs would result in the implementation of BMPs on existing vineyards, vineyard replants, and new vineyards. Although an estimated 25 percent of planted vineyards are already operating under BMPs that reduce pollutants in discharges from vineyards and roads (Table 6), some landowners/operators of vineyards that do not currently meet all of the proposed General WDRs requirements will need to take actions to reduce pollutant sources in order to obtain coverage under the General WDRs. Given that landowners/operators can choose which management measures are best suited given the physical condition of their property, a wide range of BMPs may therefore be applicable at each vineyard.

To date, some landowners/operators have completed farm planning and have implemented BMPs to a sufficient degree so as to prevent excessive soil loss or excessive storm runoff from their vineyard properties and otherwise comply with the General WDRs. In these cases, where work required by the General WDRs is essentially complete, no environmental impacts would result from the adoption of the General WDRs.

Where owners/operators are implementing some but not all of the required management actions (as identified in their Farm Water Quality Plan), remaining actions may involve minor grading or construction and could therefore result in less than significant impacts.

For vineyards with uncontrolled sediment and runoff sources for which no management actions have been undertaken to date, extensive water quality protection controls may be needed. Installation of such controls could involve substantial road rehabilitation or construction of detention basins, resulting in potentially significant environmental impacts.

Although the General WDRs would result in the Water Board permitting discharges from eligible new vineyards, the General WDRs would not grant approval for new vineyard land uses. It would only approve discharges from a property after local approval is granted for all aspects of new vineyard's construction. Current regulations for the development of new vineyards are more stringent than those for existing older vineyards and therefore, new vineyards are likely to require fewer new BMPs to abate pollutant sources. To be covered under the General WDRs, new vineyards would be required to meet all water quality requirements and be designed so that there are no increases in storm runoff rates over existing conditions. Therefore, the incremental water quality impact of additional discharges from these future facilities would be minimal.

Likely physical changes to the environment associated with possible General WDRs implementation actions are listed in Table 2 above. Categories of likely actions and their likely environmental impacts are discussed in the Initial Study checklist and responses and can be summarized as follows:

1. **Inspection and Routine Maintenance of Existing Facilities.** Inspection and routine maintenance of existing facilities (inlets, diversion structures, ditches, and small sediment basins) could result in collection and disposal of small amounts of sediment and debris. This is an existing practice that is likely to increase in frequency as a consequence of the proposed General WDRs. Disposal of small amounts of debris from inspection and routine maintenance at vineyard properties does not result in adverse impacts to the environment and is not evaluated further in the IS.
2. **Changes in the Use of Agricultural Chemicals.** The General WDRs are likely to result in modifications in the use of fertilizers and pesticides in a manner that prevents excessive amounts of these chemicals from entering streams. Possible actions to comply with this requirement may include improved timing of nutrient application, reduction in the amount of fertilizer applied, or changes in the type of fertilizer used.

   Vineyard landowners/operators may elect to use integrated pest management (IPM) practices as alternatives to the use of traditional pesticides and herbicides. IPM techniques may involve physical, biological, or mechanical methods that reduce the presence of pests. Examples include removing weeds by hand, introducing insects or host plants that provide pest management without the use of chemicals, or construction of perches or nesting boxes to encourage raptors that prey on rodents. Management actions would be identified and developed through the farm planning process and would include less-toxic pest control methods recommended by UC Cooperative Extension or similar guidance (UC Davis, NCCE). Reduction in the use of agricultural chemicals would result in beneficial impacts to water quality and are not further evaluated in the IS.
3. **Modification of Vineyard Floor Cover and Tillage Practices.** The General WDRs would require implementation of BMPs to protect soil from erosion, to promote onsite stormwater runoff dispersal, slowing, infiltration, or capture, and to prevent excessive rates of sediment delivery. Many landowners/operators will meet this requirement by limiting tillage and planting cover crops such as grasses, legumes, and native ground covers. These modifications would result in beneficial impacts to water quality and are not further evaluated in the IS.
4. **Construction of Small Structures.** Actions to comply with the General WDRs may include construction of small structures or facilities (sheds, pipes, energy dissipaters, trash racks, culverts, etc.). This type of construction could result in minor, temporary impacts during earth moving; however, these structures will typically be located in upland areas that have already been disturbed by vineyard cultivation. Impacts from dust, noise, and traffic are considered less than significant as discussed in the IS.
5. **Road Modification.** The General WDRs may result in actions to reduce sediment delivery from roads by reducing hydrological connections (direct connections such as culverts and stream crossings) between roads and streams. Techniques to achieve this may include resurfacing or regrading roads, and installing rolling dips or water bars. These actions may result in impacts from the operation of heavy equipment, earthmoving, and vegetation removal.

   Road repair could also generate minor amounts of dust, noise, and traffic during construction, which could result in less than significant impacts as discussed in the IS. Construction activities have the potential to generate air emissions and pollutants that will be evaluated in the EIR. The most common activities include earthmoving, grading, trenching and cut and fill operations. In cases where road repair occurs near streams, the construction could result in potentially significant impacts to biological resources if not properly planned, permitted and

executed. Road work that occurs near streams and that requires deep excavation (greater than six inches) could encounter archeological artifacts and could result in potentially significant impacts to cultural resources.

Road repair projects would be developed through the farm planning process and be planned and conducted in accordance with Water Quality and Stream Habitat Protection Manual for County Road Maintenance in Northwestern California Watersheds (Five Counties, 2002) approved by National Oceanic and Atmospheric Administration as protective of water quality and anadromous fish habitat.

6. **Repairs to Gullies and Landslides; Channel Erosion.** Activities to stabilize gullies, shallow landslides and channel banks may require operation of heavy equipment, earthmoving, and vegetation removal. Most of these repairs will occur on land that has already been disturbed by vineyard agricultural land uses. In cases where work occurs near streams, it could result in potentially significant impacts to biological resources if not properly planned, permitted and executed. The level of impact will depend on the scale of the project, the proximity of the project to water bodies, and specific methods used, in most cases unstable areas are expected to be small in size (i.e., small gullies, rills, eroded banks, and small shallow landslides).

   Minor, short-term impacts could result from earthmoving and from importing construction materials, such as large rocks and woody debris (logs). If repair of unstable areas requires construction in stream channels, these actions could result in impacts to wetlands and other sensitive habitats and mitigation measures may be required, as described below. Management actions will be developed and implemented through the farm planning process and will include appropriate gully stabilization and channel and culvert repair methods that follow current practice standards and guidance from local technical groups such as the Natural Resource Conservation Service, local Resource Conservation Districts, and the U.C. Cooperative Extension.

7. **Construction of Detention Basins and Engineered Drainage Facilities.** Since the Water Board cannot dictate the manner of compliance with its requirements, landowners/operators, through the farm planning process, will have the flexibility to select BMPs needed to meet General WDRs water quality requirements. One option for controlling stormwater runoff from vineyards is through the construction of stormwater detention or retention basins to slow the velocity and rate of peak stormwater flow originating from a vineyard property. Based on extensive experience by the resource conservation districts, Fish Friendly Farming, and other groups, existing vineyards can usually meet the proposed General WDRs water quality requirements for stormwater runoff and surface erosion without building large new detention basins. Detention basins that are likely to be built will typically be small and constructed on already disturbed soils.

   Occasionally, however, a new large detention basin may be proposed for construction. According to the Napa County Resource Conservation District (Steiner, 2012), detention basins may exceed 4,000 square feet in area and may be as deep as 6 feet. Construction may involve vegetation removal, grading, and alteration of hydrology that could result in temporary, less-than-significant construction-related dust, noise and traffic impacts. Deep excavation near or adjacent to water may encounter archeological artifacts, resulting in potentially significant impacts and the requirement for mitigation measures. As required in the Napa River Sediment TMDL, the construction of detention basins (or any compliance action) in this watershed on areas beyond the development footprint authorized by the local

land use authority would not be allowed in the following sensitive natural communities: redwood forest, Ponderosa Pine alliance, Tanbark Oak alliance, Oregon white oak woodland, mixed serpentine chaparral, and wet meadow grasses NFD super alliance.

Dischargers may seek to construct new engineered drainage facilities in order to reduce the potential for surface erosion, but such facilities must be constructed in a manner so as not to result in increased runoff leading to downstream increases in rates of bed or bank erosion in order to comply with the General WDRs runoff performance standard. Existing engineered drainage facilities that are problematic in terms of concentrating runoff would have to be corrected and/or retrofitted in order to meet the runoff performance standard. New vineyards approved by the local land use authority are subject to the General WDRs' requirement that there be no increases in storm runoff rates over existing conditions.

8. **Establishing Vegetated Buffers and Setbacks.** The creation of stream setbacks is not required by the General WDRs, but is voluntary. The General WDRs provides incentives to owners/operators of vineyards developed on a slope less or equal to 5 percent that border or contain streams to establish setbacks that promote water quality improvements. Setbacks allow stormwater to flow overland, slowing, spreading, and infiltrating runoff before entering receiving waters. Creation of stream setbacks provides a water quality and habitat function that is compatible with agricultural uses, while resulting in more riparian habitat and fishery benefits. Although the creation of stream setbacks could potentially result in removal of some grape vines, setbacks would not result in conversion of farmland to non-agricultural use. The decision to create desired setbacks within a vineyard parcel is entirely within individual landowner's discretion and not a requirement of the program. This action along with other program implementation measures may allow vineyard owners to be exempt from the requirement to apply for coverage under the proposed General WDRs.

Actions to comply with the proposed General WDRs would result in a multitude of environmental benefits, including reducing sediment inputs to creeks and streams, improving water quality, reducing erosive forces from stormwater runoff, improving channel stability, improving fish habitat, and enhancing riparian habitat.

In some cases, however, it is possible that the adoption of the WDRs could lead to potentially significant impacts that will be evaluated in the EIR and mitigated where required.

I. AESTHETICS

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

Background

Vineyard properties in the Napa and Sonoma watersheds that would be subject to the proposed General WDRs are typically located in rural agricultural settings. These lands are visible from public roads and neighboring properties and may also be partially visible from public open space areas. Vineyards are generally relatively large, open, cultivated areas. Trees, or other shrubs or landscape plantings, may be present, particularly along property boundaries and along riparian corridors. Vineyard structures may include one or more residences, equipment sheds, water well pump structures, frost control facilities, and roads.

Several highways that are eligible for State Scenic Designation are located in Napa and Sonoma counties including all or portions of highways 1, 12, 29, 37, and 121. Of these only Highway 12 is officially designated as a California Scenic Highway by Caltrans. (http://www.dot.ca.gov/hq/LandArch/scenic/schwy.htm).

Discussion of Impacts

a) Have a substantial adverse effect on a scenic vista.

Less than Significant Impact. The Napa and Sonoma Creek watersheds are situated in a scenic area of northern California with expansive views of wineries, long rows of vineyards, large oak woodlands and annual grasslands that create a visual mosaic landscape. There are abundant scenic vistas at various vantage points in each watershed. Implementation of BMPs to comply with the General WDRs are expected to be small in scale (plantings of cover crop, minor road re-

grading or repair, installation of small-scale structures such as culvert-protection trash racks, and no large building construction would occur. On-the-ground changes that could result from compliance with the General WDRs would consist of minor alterations to vegetation and topography that are low in profile (i.e., located near the ground surface) and will therefore blend into the existing landscape.

Implementation of the General WDRs would require minor grading or regrading of existing roads that drain to the Napa River or Sonoma Creek which could require the temporary clearing of land followed by re-vegetation. Grading and road erosion control activities would be short-term and could result in minor impacts to scenic views in various viewshed locations in both watersheds. Exposed soils would be visible along with earth-moving equipment. However, exposed areas would be replanted to blend into the landscape. Within weeks or months following construction, it is expected that the replanted vegetation will become established and blend in with the surrounding landscape. Given that anticipated actions are expected to be small in scale (from a regional context), low in profile, are short-term, and affected areas would be fully restored to blend into the existing environment, impacts to scenic vistas would be less than significant.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

Less than Significant Impact. Both Napa and Sonoma watersheds have abundant scenic resources with the flat valley topography, established vineyards and winery buildings, wildlands and Mayacamas Mountains as a backdrop**.** Highway 12 is the only designated State Scenic Highway in the project area. While some unique trees or rock outcroppings may be present on some vineyard properties, the types of BMPs that would be implemented to comply with the General WDRs would not affect these features. The anticipated compliance actions for the General WDRs are intended to preserve and enhance riparian areas, including large trees, promote vegetated buffers, and to prevent erosion, both of soil and rock outcrops.

Vineyard management actions to comply with the General WDRs may affect some parcels of land adjacent to Highway 12, a designated State scenic highway; however, these actions would typically be small in scale. Such compliance actions would not require the construction of facilities that could substantially damage scenic resources within this scenic corridor. Therefore, because the anticipated actions are small in scale (from a regional perspective), and no construction of major facilities are expected in the scenic corridor, the potential scenic resource impacts of the proposed project are considered less than significant.

c) Substantially degrade the existing visual character or quality of the site and its surroundings.

Less than Significant Impact. As described above, the General WDRs would be implemented on vineyard properties located in predominantly rural areas. The visual character of the area is generally open, typified by cultivated rows of vines, intervening cover crops, and surrounding natural hillside vegetation. Implementation of vineyard and road BMPs could result in small scale, temporary alteration of ground cover vegetation or topography that would not be highly visible and would not degrade or change the overall visual character of vineyard sites or the surrounding regional viewshed areas. Therefore, the impacts to scenic resources would be less than significant.

d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

No Impact. The project would not require those complying with the General WDRs to install any lighting or structures that could create light or glare and impair day or night time views. Therefore, it would have no impact to light and glare.

II. AGRICULTURE AND FOREST RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the Calif. Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the CalFIRE 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 Calif. Air Resources Board. Would the project*:*				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?			X	
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined by Public Resources Code section 4526?				X
d) Resulting in the loss of forest land or conversion of forest land to non-forest use?				X
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			X	

Background

Napa and Sonoma counties are premier wine-making regions of the world, with most agricultural land dedicated to vineyards and winery operations. Data from the county planning departments,

Agricultural Commissioner, and the RCDs indicate that greater than 60,000 acres of vineyards are actively producing in the Napa River and Sonoma Creek watersheds. The General WDRs would apply, based on the eligibility and exemption criteria, to an estimated 89 percent of the existing vineyards in the Napa River and the Sonoma Creek watersheds.

The General WDRs would require implementation of vineyard BMPs that will result in reductions in erosion, sedimentation, and the discharge of pollutants from vineyard properties. These in turn will lead to an improvement of water quality, stream function, and riparian health. Implementation of the proposed General WDRs is consistent with Napa County's conservation goals and policies (Napa County General Plan) and Sonoma County's Policy and Goals for Reduction of Soil Erosion (Sonoma County General Plan) that encourage and support agriculture through implementation of programs that increase the sustainability of resources, conserve energy, and protect water and soil (refer to Section X, Land Use and Planning). The General WDRs are also consistent with many conservation policies and regulations of cities located within the two watersheds.

Discussion of Impacts

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.

Less than significant. Many vineyard properties in the Napa and Sonoma Valleys are mapped by California Department of Conservation (www.conservation.ca.gov) as Unique Farmland; however, implementation of vineyard BMPs would not result in the conversion of Prime Farmland, Unique Farmland or Farmland of Statewide Importance to non-agricultural use for the following reasons:

- Individual landowners/operators may choose to implement BMPs (including creating setbacks or buffers of vineyards from riparian areas or constructing on-site drainage facilities such as detention basins) that could remove or relocate portions of some vineyard blocks. Removal of grapevines from production would not result in conversion to non-agricultural uses since all foreseeable uses on vineyard property under the General WDRs would be compatible with, and ancillary to, existing vineyard agricultural uses.
- It is possible for landowners/operators of vineyards to comply with the General WDRs without changing the total area of vineyard (e.g. implementation of BMPs that do not impact existing vineyard row layouts or adjusting vine and row spacing to allow for setbacks).
- Voluntary creation of stream setbacks at existing vineyards in flat areas adjacent to streams may cause loss of grape production areas which the landowner must take into account in deciding this compliance option. However, the establishment of a stream setback on a portion of a vineyard is not considered to be a significant impact given that this action is compatible with and ancillary to maintaining existing agriculture uses. In addition, establishment of setbacks is voluntary and not a required compliance action.

The General WDRs would not result in the conversion of existing vineyards for non-agricultural uses such as residential, commercial or industrial land uses. Therefore, impacts are considered less than significant.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract.

No Impact. Implementation of vineyard BMPs in the General WDRs would not affect existing agricultural zoning or any aspect of a Williamson Act contract because the actions are relatively

small from a watershed perspective and do not materially change the primary agricultural activity on the parcels that benefit from Williamson Act contracts.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined by Public Resources Code section 4526)?

No Impact. Implementation of vineyard BMPs would not conflict with existing zoning for, or cause rezoning of forest land (as Defined in Public Resources Code section 12220(g)) or timberland (as defined by Public Resources Code section 4526).

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. Implementation of vineyard BMPs resulting from this WDR would not result in the loss of forest land or conversion of forest land to non-forest use because the proposed project is focused entirely on existing vineyards or new vineyards that have received approval for development through local regulatory channels. Conversions of forest to vineyards would trigger local county land use regulations and California Department of Forestry and Fire Protection timber harvest regulations under the Forest Practice Act and associated planning and permitting processes by these agencies. The requirements of the proposed project by itself would not cause conversion of forest lands. The General WDR also exclude from coverage discharges associated with forest to vineyard conversions. Therefore, no impacts are anticipated.

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.

Less than Significant Impact. As indicated in response to Item II a, above, the General WDRs would not result in conversion of farmland to non-agricultural use, because all foreseeable vineyard BMPs (drainage facilities, stream buffers, or roads) would be compatible with, and ancillary to, existing agricultural practices and uses. No non-agricultural land uses would result from compliance with the General WDRs. Landowners/operators with vineyards in flat areas adjacent to streams may choose to remove select grape vines or reposition a road, to establish stream setbacks or to enhance riparian habitat. However, the resultant setbacks would be voluntary and consistent with existing county policies and regulations.

Efforts to comply with the General WDRs may result in planting of native vegetation around vineyards to create vegetated buffer strips and to increase the size and ecological function of riparian zones. Increases in riparian vegetation would have beneficial impacts to water quality by filtering pollutants, providing shade, and reducing algae blooms. Native vegetation in the riparian corridor should be selected using plant lists provided by the RCDs, so that host plants for vineyard pests (such as Pierces disease) are not planted. Therefore, planting native riparian vegetation near vineyards would not adversely affect and could help agricultural production.

III. AIR QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?				X
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	X			
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 that exceed quantitative thresholds for ozone precursors)?	X			
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Create objectionable odors affecting a substantial number of people?			X	

Background

Napa and Sonoma counties are located in the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). These counties are situated in the northern part of the greater San Francisco Bay area and are bound on the west by Marin County, to the south by San Pablo Bay, and to the east by the Central Valley (Figure 1). The prevailing wind directions at the Napa County Airport are generally from the south to southwest and average wind speeds are about nine miles per hour. Average high temperatures are usually in the 50s in the winter and the 70s in the summer. The warmest months are August and September. Climate conditions in Sonoma Valley are similar to those in the adjacent Napa Valley.

The Bay Area is currently designated as a nonattainment area for State and national ozone standards and as a nonattainment area for the State particulate matter (particles with diameter 10 micrometers or less, referred to as PM_{10} and particles with diameter 2.5 micrometers or less, referred to as $PM_{2.5}$) standards. As required by federal and State air quality laws, the 2001 Bay

Area Ozone Attainment Plan and the 2000 Bay Area Clean Air Plan have been prepared to address ozone nonattainment issues. In addition, the BAAQMD, in cooperation with the Metropolitan Transportation Commission and the Association of Bay Area Governments, prepared the Bay Area 2005 Ozone Strategy. This report describes the Bay Area's strategy for compliance with State one-hour ozone standard planning requirements and how to improve air quality in the region and reduce transport of air emissions to neighboring air basins. No PM_{10} plan has been prepared nor is one currently required under State air quality planning law.

The BAAQMD monitors priority air pollutants at stations throughout the Bay Area. The Napa monitoring station (the only BAAQMD station in the area affected by the General WDRs) is the most representative of air quality conditions in the North Bay where vineyard BMPs would be implemented under the General WDRs. Criteria air pollutants routinely measured at the Napa Station include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter (PM_{10}). Smaller particle size, $PM_{25,}$ is not monitored at the Napa Station. Combustion exhaust from the operation of vehicles, such as cars, trucks, and farm equipment may contribute to concentrations of these pollutants. Earthmoving for construction and road work can generate dust that is a source of particulate matter.

The 2007 through 2011 Napa air monitoring station data shows that carbon monoxide, nitrogen dioxide, and ozone concentrations are well below State and federal standards. The concentrations of PM_{10} varies throughout the year and is typically below the State standard of 50 micrograms per cubic meter (two days of exceedances in 5 years) and are well below the federal standard of 150 micrograms per cubic meter. Other air quality monitoring stations in the North Bay (San Rafael and Santa Rosa) also report concentrations of all criteria pollutants well below the standards.

Actions to comply with the General WDRs may generate particulates and other air pollutants from construction equipment exhaust and earth disturbance.

Discussion of Impacts

a-e. An analysis of potential air quality impacts due to the proposed project will be provided in the EIR.

IV. BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	X			
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?	X			
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?	X			
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?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
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?				X

Background

The Napa River and Sonoma Creek watersheds support a wide diversity of plant and animal species, including a number of special status species and sensitive natural communities. These communities include mixed evergreen forests, oak woodlands and savanna, native and non-native grasslands, chaparral, and riparian scrub and woodland. The watersheds provide habitat for several threatened aquatic species including steelhead trout (Oncorhynchus mykiss) and Chinook salmon (Oncorhynchus tshawytscha) that are protected under the Federal Endangered Species Act.

The proposed General WDRs would implement the sediment TMDLs, which were developed specifically to benefit biological resources in the watersheds, including fish, wildlife, and rare and endangered species, which have been adversely affected by sediment. Actions to comply with the General WDRs would primarily occur on land that is currently in vineyard production, or on existing roads in open space areas on vineyard properties. These areas have already been disturbed by land cultivation and by road construction. Some BMPs could, however, involve work in streams and riparian or wetland areas.

Discussion of Impacts

a-f. An analysis of potential biological impacts from the proposed project will be provided in the EIR.

V. CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
CULTURAL RESOURCES -- Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?			X	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	X			
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	X			
d) Disturb any human remains, including those interred outside of formal cemeteries?	X			

Background

Archaeological Resources. Before the European settlement, the Sonoma and Napa valleys were inhabited primarily by Native Americans of the Pomo, Wappo, Lake Miwok, and Patwin tribal groups. Artifacts indicate that the earliest dates of human occupation in Napa Valley date back approximately 5,000 years. This territory consisted of valleys and foothills with plentiful resources and a temperate climate. Permanent occupation sites were most frequently located at the confluence of streams, in the valleys, and at the bases of hills. As with most of the hunting-gathering groups of California, the 50- to 150-person tribelet represented the basic social and political unit. The acorn was the primary plant food, along with a variety of roots, bulbs, grasses, and other edible greens; and deer, elk, and antelope were the primary big game. Glass Mountain, located on the east side of the valley near Calistoga, was a regionally important obsidian source of high quality for Native Americans and was an important trading commodity (Watershed Information Center and Conservancy of Napa County, 2005).

With the advent of the mission system in the latter half of the 1700s, the numbers of Native Americans in the Napa and Sonoma regions decreased rapidly, as did all Native American populations throughout the San Francisco Bay Area and California.

Historic Resources. After European settlement the area's agricultural industry became cattle, grown to support the needs of the Sonoma Mission. Historic and archaeological remnants of these counties' pasts include sacred sites, burial grounds, cemeteries, ceremonial sites, barns, farmsteads, vineyards and walls, among others.

Historical resources, as distinguished from archaeological resources, include antiques, buildings, structures, and sites generally of the past two centuries, marking the successive eras of Russian, Mexican, and North American occupation of Sonoma and Napa counties, and are present in both watersheds.

CEQA §15064.5 considers historic resources significant if they are eligible for, or are listed in, the California Register of Historical Resources. Historic resources must meet one of the following criteria to be eligible:

It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

It is associated with the lives of persons important to local, California, or national history;

It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or

It has yielded, or has the potential to yield, information important to the pre-history or history of the local area, California, or the nation.

Discussion of Impacts

a-d An analysis of potential impacts to cultural resources from the proposed project will be provided in the EIR.

VI. GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
GEOLOGY AND SOILS -- Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				X
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.				X
ii) Strong seismic ground shaking?				X
iii) Seismic-related ground failure, including liquefaction?				X
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?			X	
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?				X
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?				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X

Background

Napa River Watershed: The Napa River watershed consists of Mesozoic and Cenozoic volcanic rocks with younger sedimentary rocks in the valley floor area. The watershed is located at the southern end of the northern California Coast Range province, an active zone of tectonic deformation and activity that is associated with the San Andreas Fault system. The San Andreas Fault is located about 35 miles (56 km) southwest of the watershed. The watershed is more locally bound by two major faults: the north-west striking Green Valley Fault in the east (about 7 miles [11 km] to the northeast of the watershed boundary), and northwest striking Healdsburg-Rodgers Fault in the west (about 15 miles to the southwest of the watershed boundary).

Sonoma Creek Watershed: The Sonoma Creek watershed, located in the Sonoma Valley, is also part of the Coast Range Physiographic province. The west side of the valley consists of young sedimentary rocks and the east side is predominantly older volcanic rocks of the Mayacama Mountains. Similar to the Napa Valley, the Sonoma Creek watershed lies in an active zone of tectonic activity that is associated with the San Andreas Fault system.

Several notable faults are aligned roughly southeast – northwest influencing the Sonoma Creek.

Discussion of Impacts

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.

ii) Strong seismic shaking?

iii) Seismic-related ground failure?

iv) Landslides?

No impact. The proposed General WDRs would not involve the construction of habitable structures; therefore, it would not result in any human safety risks related to fault rupture, seismic ground-shaking, ground failure, or landslides.

b) Result in substantial soil erosion or the loss of topsoil?

Less than significant. The purpose of the General WDRs is to reduce soil erosion. Anticipated compliance actions consist of erosion management strategies such as increasing ground cover, stabilizing eroding areas, and repairing failing roadways or erosional features to eliminate sediment sources. Installation of anticipated compliance actions such as the construction of small structures or facilities (pipes, inlets, energy dissipaters, trash racks, drainage facilities, storm runoff diversion structures, etc.) could result in small scale earth moving from construction vehicles and equipment used during installation. Although these types of actions are routinely used in existing vineyard operations, the proposed General WDRs would likely result in increases in the installation and

maintenance of the above-mentioned structures. Such activities (e.g., promoting infiltration of rainfall on vineyards, the repair of erosion features, minor road rehabilitation or decommissioning, etc.) would not result in substantial soil erosion or the loss of topsoil because these actions are anticipated to be limited in size and scope and earth disturbance would be temporary.

Some of these projects may also be subject to the requirements of the Napa or Sonoma County grading ordinances, which would reduce potential erosion impacts from earthmoving. Therefore, potential soil erosion or loss of topsoil from the proposed project is considered less than significant because actions are expected to be temporary, limited in size and scope, and must comply with existing country grading ordinance requirements.

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?

Less than significant. The General WDRs is intended to reduce soil erosion. Geologic units or soils that are known to be unstable under various conditions in both watersheds have been identified by the Water Board as part of developing the proposed General WDRs. A map indicating where unstable conditions may exist on a watershed scale will be provided as part of the EIR. Site-specific areas of instability will be identified as part of the Farm Water Quality Plan preparation and will be avoided (to promote natural recovery and revegetation) or stabilized through selected BMPs and during planning for new vineyards or replanting on unstable geologic units or highly erosive soil areas. Because the General WDRs requires actions to stabilize existing sources of sediment, some grading and remedial actions, such as installation of retaining walls, stream bank repairs, and/or gully repair, could occur to stabilize these unstable areas. Outgrowth stabilization actions could include improvements to roads and creek crossings, and other projects located on unstable terrain. These projects would be designed to increase stability, both on-site and off-site, and to reduce erosion and sedimentation. Grading would be designed to minimize any potential for landslides, lateral spreading, subsidence, liquefaction, or collapse.

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?

No impact. Landowner/operator compliance with the General WDRs would not involve construction of buildings (as defined in the Uniform Building Code) or any habitable structures. Minor grading and construction could occur in areas with expansive soils but this activity would not create a substantial risk to life or property.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No impact. Compliance actions associated with the General WDRs would not require the installation of wastewater disposal systems; therefore, affected soils need not be capable of supporting the use of septic tanks or alternative wastewater disposal systems.

VII. GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
GREENHOUSE GAS EMISSIONS – Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	X			
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				X

Background

In 2006, California passed the California Global Warming Solutions Act of 2006, which requires the California Air Resources Board (CARB) to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide greenhouse gas (GHG) emissions are reduced to 1990 levels by 2020 (representing an approximate 25 percent reduction in emissions).

State law requires local agencies to analyze the environmental impact of GHG emissions under CEQA. The Natural Resources Agency adopted the CEQA Guidelines Amendments in 2009. The BAAQMD adopted CEQA thresholds for GHG emissions in the Bay Area in 2010. Sonoma County currently has an adopted a *Climate Action Plan* and Napa County is currently developing a *Climate Action Plan* in collaboration with the BAAQMD (Napa County, 2011). These plans address projects that would result in long-term, operation increases in GHG emissions.

Greenhouse gas emissions may be generated during short-term construction activities that would occur during installation of certain BMPs to address erosion and stormwater runoff control.

Discussion of Impacts

a-b. An analysis of potential impacts to greenhouse gas emissions from the proposed project will be provided in the EIR.

VIII. HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?			X	
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?				X
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
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?				X
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?				X
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?				X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
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?				X

Background

Routine operations at vineyard facilities may involve the storage and use of a number of potentially hazardous materials such as agricultural chemicals and petroleum products. Vineyards typically contain facilities to store and mix agricultural chemicals such as pesticides, fungicides, herbicides, and fertilizers. These chemicals are a potential source of pollution to surface and groundwater if not properly stored, applied, and managed. The production, use, disposal and management of registered agricultural chemicals used at vineyards and associated farm operations are regulated by the Napa and Sonoma County Agricultural Commissioners and California Department of Food and Agriculture and the EPA. Hazardous chemicals and materials used at existing vineyard or as part of vineyard operations are covered by multiple state and federal laws including Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The federal Insecticide, Fungicide and Rodenticide Act (FIFRA) is the primary federal regulation overseeing the production and use of beneficial poisons. Hazardous materials business plans (HMBP) are enforced by local county fire and emergency response divisions. California Department of Toxic Substances Control (DTSC) regulates hazardous waste sites that are not within federal jurisdiction.

The proposed General WDRs do not require additional environmental protective measures dealing with hazardous wastes beyond those already being required and enforced under current state or federal laws.

Discussion of Impacts

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant Impact: Construction associated with implementing vineyard BMPs and road erosion control (e.g., promoting infiltration on vineyards, repair of erosion features, road rehabilitation or retirement, etc.) would not involve the use or transport of hazardous materials, aside from those fuels (e.g., gasoline, diesel) and lubricants typically used for heavy construction equipment. Fuels and lubricant quantities used to implement selected vineyard BMPs would be small in quantity and their application would be limited to the operation of construction-related equipment and vehicles. These types of hazardous materials are currently used at most vineyards to power farm equipment such as trucks and tractors, and any impacts from their use during construction would be less than significant.

Compliance with the General WDRs would not affect the transportation or potential release of hazardous materials, nor create a significant public safety or environmental hazard beyond any hazards currently in existence. Actions to implement the General WDRs would not interfere with adopted local or State emergency response plans or emergency evacuation plans and would not affect the potential for wild-land fires.

The proposed General WDRs would require that pesticides be used in accordance with all applicable laws, regulations, and labeling requirements and allows for landowners/operators to meet

this requirement through a pesticide certificate issued by the County Agricultural Commission. The County Agricultural Commissioner is authorized to regulate and enforce federal and state laws regulating the storage and use of pesticides.

The proposed General WDRs would not involve hazardous emissions or acutely hazardous materials of waste within one quarter mile of existing or proposed schools in Napa or Sonoma Valley.

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?

No Impact. Refer to response to Item VIII a), above.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. Refer to response to Item VIII a), above.

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?

No Impact. Refer to response to Item VIII a), above.

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?

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?

e) & f) No Impact. There are two airports located in the Napa and Sonoma Valleys. The Sonoma Valley/Schellville Airport is located at 23980 Arnold Drive, about 4 mile south of town of Sonoma. The Napa County Airport is located about 3 miles south of downtown Napa. Although the Napa Valley Airport is adjacent to a business park, both airports are also adjacent to, or nearby to vineyards.

Regardless of vineyard proximity to these airports, the General WDRs would not require implementation actions on vineyards that could result in increasing existing safety hazards affecting residents residing within the vicinity of these airports.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

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?

g) and h)
No Impact. Refer to response to Item VIII a), above.

IX. HYDROLOGY AND WATER QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
HYDROLOGY AND WATER QUALITY -- Would the project:				
a) Violate any water quality standards or waste discharge requirements?				X
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)?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	X			
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?			X	
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?				X
f) Otherwise substantially degrade water quality?				X
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?				X
h) Place within a 100-year flood hazard area structures which would impede or redirect				X

flood flows?				
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?				X
j) Inundation by seiche, tsunami, or mudflow?				X

Background

Napa River. The Napa River watershed encompasses about 425 square miles (Figure 1). The Napa River and its tributaries drain the western portion of Napa County discharging into San Pablo Bay. The northeastern part of the county drains into Lake Berryessa, by way of Putah Creek and its tributaries.

Flow volume in the Napa River varies markedly between dry and wet years. The long-term average discharge of the Napa River is approximately 66,000 acre feet (af); however, the minimum recorded annual discharge (about 5,000 af) occurred in 1931, and the maximum recorded annual discharge (in excess of 200,000 af) occurred in 1986 (U.S. Geological Survey 2001).

The Napa Valley is a depositional basin filled to varying depths with unconsolidated and semi-consolidated alluvial material consisting of Mesozoic marine sediments, and metamorphic and igneous rocks, derived from nearby mountains. The largest volumes of groundwater reside the alluvium, with the Mesozoic rocks acting as confining units that generally restrict the flow of groundwater. Groundwater in the alluvium occurs primarily under unconfined aquifer conditions, while groundwater in the tuffaceous volcanic rocks occurs under both confined and unconfined aquifer conditions.

Groundwater in the Napa Valley is not a significant municipal use source of water. Less than one percent of the total volume of groundwater extracted from the Napa Valley is used for municipal use, chiefly by the city of Calistoga. About 70 percent of all groundwater is used for irrigation purposes (mainly for vineyards), and 30 percent for rural domestic use.

Sonoma Creek. The Sonoma Creek watershed encompasses about 165 square miles (Figure 1). The watershed is commonly divided into three subbasins: Fowler Creek and the smaller creeks west of the City of Sonoma; Nathanson Creek and the creeks east of Schellville; and the mainstem of Sonoma Creek. The headwaters of the western tributaries lie in the Sonoma Mountains and flow into Fowler Creek, which eventually drains to Sonoma Creek near Sonoma. The eastern tributaries drain the hills to the north and east of Sonoma and join Schell Creek just south of Sonoma.

Sonoma Creek flows into San Pablo Bay via a number of circular sloughs and channels that have been highly modified over the last 150 years by dredging, levees, and realignment. Flows from Sonoma Creek also vary markedly between dry and wet years. The long-term average annual discharge of Sonoma Creek is approximately 43,000 af; however, the minimum recorded annual discharge (about 3,000 af) occurred in 1939, and the maximum recorded annual discharge (in excess of 115,000 af) occurred in 1956 (U.S. Geological Survey 2001).

Sonoma County's groundwater plays an extremely important role in our natural environment, communities, industry sectors and agriculture. In 2002, there were approximately 40,000 wells in Sonoma County, with 42 percent of the population supported at least in part by groundwater. Nearly all of the county's population relies on groundwater as either a primary or backup source of water supply.

The amount of groundwater in an area varies by the recharge from rainfall, the surface runoff in streams and drainage channels, and the local underground geology. The alluvial soils, sand and gravel found in valleys generally can hold large amounts of water and thus constitute the largest groundwater aquifers in the county. Although sandstone and some other sedimentary rocks can absorb some water, many upland areas of the county are composed of harder rock formations where groundwater is less continuous and is found only in cracks and fractures.

Existing and potential beneficial uses identified in the Basin Plan for the Napa River and its tributaries, Sonoma Creek and its tributaries, and San Pablo Bay (the receiving water for Napa River and Sonoma Creek) are listed in Table 6.

Table 6. Beneficial Uses for the Napa River, Sonoma Creek and their tributaries

Beneficial Use	San Pablo Bay	Napa River	Sonoma Creek
Agricultural Supply (AGR)		X	
Cold Freshwater Habitat (COLD)		X	X
Ocean, Commercial, and Sport Fishing (COMM)	X		
Estuarine Habitat (EST)	X		
Industrial Service Supply (IND)	X		
Fish Migration (MIGR)	X	X	X
Municipal and Domestic Supply (MUN)		X	
Navigation (NAV)	X	X	
Preservation of Rare and Endangered Species (RARE)	X	X	X
Water Contact Recreation (REC-1)	X	X	X
Non-contact Recreation (REC-2)	X	X	X
Shellfish Harvesting (SHELL)	X		
Fish Spawning (SPWN)	X	X	X
Warm Freshwater Habitat (WARM)		X	X
Wildlife Habitat (WILD)	X	X	X

Discussion of Impacts

a-g. An analysis of potential impacts to hydrology and water quality from the proposed project will be provided in the EIR.

X. LAND USE AND PLANNING

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
LAND USE AND PLANNING - Would the project:				
a) Physically divide an established community?				X
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?				X
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X

Background

The General WDRs would apply to vineyard properties in the Napa and Sonoma valleys that meet the established eligibility criteria (Table 1). The zoning ordinances for these counties stipulate requirements for agricultural land uses, including vineyards. The general plan policies relevant to vineyards and water quality for Napa and Sonoma counties are summarized in Tables 7 and 8, respectively.

Napa County. Napa County has for many years been committed to the conservation of sensitive resources and has been at the forefront of both protecting agricultural land and providing for the conservation of natural resources including surface and ground water, soils, fisheries, wildlife, important plant species, and habitats. Napa County's Conservation Regulations, approved by the Board of Supervisors in 1991 established procedures for review of projects that might have an effect on water quality or other natural resources issues. In 2008, the Napa County Board of Supervisor's adopted an updated General Plan, which includes several Goals and Policies aimed at protecting and enhancing the natural resources within the County (Napa County 2008). The County's Conservation Regulations, discretionary Erosion Control Plan process, and applicable General Plan goals and policies make up the regulatory framework, which collectively regulate erosion and peak flow from new vineyard development on slopes greater than 5 percent.

Napa County Conservation Regulations require stream setbacks for development adjacent to streams designated in the Napa County General Plan. County designated streams require 35 to 150 foot setbacks depending on slope, which is measured from the top of bank to the outer edge of the area to be graded. Discretionary projects, including new vineyard development on slopes greater than 5 percent, are required to meet performance standards designed to ensure that peak

runoff from post-development projects is not greater than pre-development conditions for 2, 10, 50, and 100-year storm events.

Sonoma County. Though Napa County was the first to require erosion control for new vineyards, Sonoma County has its own version and regulates vineyards in accordance with the 2000 Grading, Drainage, & Vineyard & Orchard Site Development Ordinance, also known as "VESCO." Growers planting new vineyards, orchards or replanting existing vineyards or orchards are required to meet standards within the Sonoma County Code and comply with requirements including BMPs, as established in the Agricultural Commissioner's BMPs guidelines.

The County General Plan requires stream setbacks on all new developments. The setback is determined by slope and soil type. Stream setbacks in areas with gentle slope and more stable soils are 25 feet while steeper slopes with erodible soils require a minimum 50 foot setback. Additional regulations, adopted by the Board of Supervisors in 2012, require that BMPs be implemented for projects that propose to remove more than one half acre of trees on slopes greater than 10 percent or 15 percent, based on soil type. These updated BMPs require slope stability analysis as well as identification of soil types prone to slides. The use of predictive models is also required to show that the development will not increase erosion or sediment delivery from the pre-existing site conditions.

Discussion of Impacts

a) Physically divide an established community?

No impact. The General WDRs is not a land use approval regulation and new vineyards will not be approved by this regulation. The General WDRs requires that where vineyards exist or are proposed, the owners/operators of these existing or proposed vineyards implement BMPs to reduce non-point source pollutants and to control erosion, runoff and sedimentation. These BMPs will not include the construction of large permanent structures or other features that could divide a community, nor would they physically divide an established community.

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?

No Impact. The General WDRs would not affect any land use plan, policy, or regulation and would therefore not conflict with any zoning ordinances. On the contrary, the general plans for Napa County and Sonoma County include a number of policies relevant to the Water Board that articulate support for sediment TMDL compliance.

These policies are summarized in Tables 7 and 8 below, along with an assessment of the General WDRs' compliance with general plans. As the tables show, the General WDRs would comply with, and in some cases, augment general plan goals and policies for both Sonoma and Napa counties.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

No impact. Actions to comply with the General WDRs would not conflict with any Habitat Conservation Plans or natural community plans in Sonoma or Napa counties.

Table 7. Napa County Water-Related General Plan Policies

POLICY	PROJECT COMPLIANCE
Policy CON-47: The County shall comply with applicable Water Quality Control/Basin Plans as amended through the Total Maximum Daily Load (TMDL) process to improve water quality. In its efforts to comply, the following may be undertaken: a) Monitoring water quality in impaired waterbodies identified by the Regional Water Quality Control Boards (RWQCBs). b) Addressing failing septic systems in the vicinity of Murphy, Browns Valley, and Salvador Creeks and throughout the County, should they be found to exist. c) Retrofitting County-maintained roads to reduce sediment caused by runoff. d) Supporting voluntary habitat restoration and bank stabilization efforts, with particular focus on the main stem and main tributaries of the Napa River. e) Ensuring continued effectiveness of the National Pollution Discharge Elimination System (NPDES) program and stormwater pollution prevention. f) Ensuring continued effectiveness of the County's Conservation Regulations related to vineyard projects and other earth-disturbing activities. g) Addressing effects related to past and current mining, grazing, and other activities to the extent feasible. h) Amending the County's Conservation Regulations or County Code to address excessive sediment delivered to waterways as required by state law, particularly as it relates to private roads and rural unimproved (i.e., dirt or gravel) roads. i) Developing outreach and education programs to inform land owners and managers about improving surface water quality (e.g., rural and private road maintenance, soil and vegetation retention, construction site management, runoff control, etc.) and cooperating with other governmental and non-governmental agencies seeking to establish waiver or certification programs.	One main purpose of the General WDRs is to implement the Napa River sediment TMDL and therefore the General WDRs would be consistent with this policy.

Policy CON-49: The County shall develop and implement a water quality monitoring program (or programs) to track the effectiveness of temporary and permanent Best Management Practices (BMPs) to control soil erosion and sedimentation within watershed areas and employ corrective actions for identified water quality issues (in violation of Basin Plans and/or associated TMDLs) identified during monitoring.	The General WDRs would support the Water Board's efforts to implement BMPs to control soil erosion and sedimentation. Furthermore, the General WDRs will require annual reporting to the Water Board on the BMPs deployed and their effectiveness. Actions to implement the requirements of the General WDRs are therefore consistent with this policy.
Policy CON-50: The County will take appropriate steps to protect surface water quality and quantity, including the following: a) Preserve riparian areas through adequate buffering and pursue retention, maintenance, and enhancement of existing native vegetation along all intermittent and perennial streams through existing stream setbacks in the County's Conservation Regulations b) Encourage flood control reduction projects to give full consideration to scenic, fish, wildlife, and other environmental benefits when computing costs of alternative methods of flood control. c) The County shall require discretionary projects to meet performance standards designed to ensure peak runoff in 2-, 10-, 50-, and 100-year events following development is not greater than predevelopment conditions. d) Maintain minimum lot sizes of not less than 160 acres in Agriculture, Watershed, and Open Space (AWOS) designated areas to reflect desirable densities based on access, slope, productive capabilities for agriculture and forestry, sewage disposal, water supply, wildlife habitat, and other environmental considerations. e) In conformance with National Pollution Discharge Elimination System (NPDES) requirements, prohibit grading and excavation unless it can be demonstrated that such activities will not result in significant soil erosion, silting of lower slopes or waterways, slide damage, flooding problems, or damage to wildlife and fishery habitats. a) Not Applicable b) Not Applicable	The General WDRs would support the Water Board's efforts to reduce erosion from vineyard properties, including their associated road networks, and to incentivize the creation of stream setbacks. These actions are therefore consistent with this policy.

h) Require replanting and/or restoration of riparian vegetation to the extent feasible as part of any discretionary permit or erosion control plan approved by the County, understanding that replanting or restoration that enhances the potential for Pierce's Disease or other vectors is considered infeasible.	

Table 8. Sonoma County Water-related General Plan Policies

POLICY	PROJECT COMPLIANCE
Policy WR-1a: Coordinate with the RWQCB, public water suppliers, Cities, Resource Conservation Districts (RCDs), watershed groups, stakeholders and other interested parties to develop and implement public education programs and water quality enhancement activities and provide technical assistance to minimize stormwater pollution, support RWQCB requirements and manage related County programs. Where appropriate, utilize watershed planning approaches to resolve water quality problems.	The General WDRs efforts would result in reduced erosion from vineyard properties, including their associated road networks, and are therefore consistent with this policy.
Policy WR-1e: Assist in the development of Total Maximum Daily Loads (TMDLs) for the impaired water bodies and pollutants of concern identified by the RWQCBs to achieve compliance with adopted TMDLs. Work with the RWQCB to develop and implement measures consistent with the adopted TMDLs.	One main purpose of the General WDRs is to implement the Sonoma Creek sediment TMDL and therefore the General WDRs would be consistent with this policy.
Policy WR-1g: Minimize deposition and discharge of sediment, debris, waste and other pollutants into surface runoff, drainage systems, surface water bodies, and groundwater.	The General WDRs would reduce sediment discharge to surface water bodies and would be consistent with this policy.
Policy WR-1h: Require grading plans to include measures to avoid soil erosion and consider upgrading requirements as needed to avoid sedimentation in stormwater to the maximum extent practicable.	The General WDRs would support the Water Board's efforts to implement BMPs to control soil erosion and sedimentation from vineyard properties and is therefore consistent with this policy.
Policy WR-1j: Support educational technical assistance programs for agricultural activities and dissemination of BMPs for erosion and sediment control, which include on-site retention of stormwater, maintaining natural sheetflow and drainage patterns, and avoiding concentrated runoff, particularly on slopes greater than 35 percent.	The General WDRs encourage property owners to work with technical assistance third-party programs, including but not limited to RCDs, the UC Cooperative Extension, and Fish Friendly Farming to develop Farm Water Quality Plans and to help implement the requirements of the General WDRs.

	The General WDRs requires the sediment control and minimization of erosive, concentrated stormwater flows through the implementation of site-specific BMPs that might include on-site stormwater retention, stormwater dispersion, etc. These actions are consistent with this policy.

XI. MINERAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?				X
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?				X

Background

The California Surface Mining and Reclamation Act of 1975 (SMARA) required identification of mineral resources in California. The California Department of Conservation is the state agency responsible for implementing and enforcing SMARA regulations and preparing SMARA maps of significant mineral resources in each county. SMARA maps exist for both counties and identify and classify mineral resources as to their relative value for extraction (http://www.quake.ca.gov/gmaps/WH/smaramaps.htm).

The Napa County General Plan Land Use Map contains a 'Mineral Resource' overlay zone that identifies mineral resources in the county and outlines resource management policies (Napa County 2008). Similarly, Sonoma County has adopted the Aggregate Resources Management (ARM) Plan, a plan for obtaining future supplies of aggregate material (Sonoma County 2010). The ARM plan serves as the state-mandated mineral management policy for the county and is intended to accomplish the mandated purposes.

Discussion of Impacts

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?

No impact: Compliance with the General WDRs may include minor earthmoving during grading for road rehabilitation, culvert repair and replacement and construction of small structures. These projects would be relatively small in scale and would not result in the loss of availability of a known mineral resource or physically preclude future mining activities from occurring.

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?

No Impact. Refer to response to Item XI a), above.

XII. NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
NOISE -- Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?				X
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?				X
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				X
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X

Background

Vineyard properties meeting the eligibility criteria for coverage under the General WDRs are usually located in rural areas that are typically large open landscapes where main noise sources are from seasonal agricultural activities and nearby public roads and highways. Small airports are located in each watershed and they may also be an intermittent noise source (refer to response to Item VIII (e), above).

Furthermore, vineyard properties covered under this General WDRs would typically consist of larger land parcels that are mostly located away from schools, hospitals, and other sensitive land uses. Residential uses in agriculturally zoning districts are very low density, consisting typically of only a few residences on each of the larger vineyard parcels.

Adoption of the General WDRs may result in an increase in implementation of projects that could involve minor grading and construction (e.g., road rehabilitation project and construction of detention basins) that may result in local, temporary, construction-related noise emissions above ambient noise levels. Increased noise levels would be limited to the immediate area of grading operation and construction site and would not expose sensitive receptors to harmful levels of noise, likely to be located substantial distances from eligible vineyard properties. BMPs to comply with the General WDRs would not result in any on-going new noise sources. Sonoma and Napa County General Plans have noise ordinances or noise elements that address acceptable community noise levels (Napa County 2009, Sonoma County 2010). The Napa County Health and Safety Code has established limits for exterior noise; these limits vary depending on land use and range from 45 decibels for rural residential areas to 75 decibels for industrial areas. The Sonoma County Noise Element describes thresholds for exterior noise during the daytime and nighttime. These standards allow for a maximum exterior noise level of 70 decibels, with the average over a one hour time period not exceeding 50 decibels during the daytime. The nighttime allowable noise ranges from 45 to 65 decibels.

Discussion of Impacts

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

No Impact. The General WDRs could involve earthmoving and construction activities by vineyard owners. Construction would generally be small in scale, short-term in duration, and could temporarily generate noise above ambient levels. Construction timing, equipment types, and noise-generating operations at construction sites for projects to comply with the General WDRs would have to be consistent with Napa and Sonoma Counties' own noise standards, as discussed in response to item XII (b), below.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

No impact. Actions to comply with the General WDRs could involve minor earthmoving and construction. Construction would generally be small in scale and would not involve deep excavation, pile driving or other construction methods that may generate excessive groundborne vibration or groundborne noise. The Napa County Health and Safety Code and the Sonoma County Noise Element establish limits for exterior noise, as described under the Background section above.

Actions proposed to comply with the General WDRs are not expected to be of the size or scope that would generate excessive groundborne vibration or groundborne noise. Furthermore, construction projects undertaken to comply with the General WDRs will need to comply with their respective county standards to minimize construction-related noise.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

No Impact. As described above, actions to comply with the General WDRs would not include new, permanent noise generating sources and would not cause any permanent increases in ambient noise levels. Any noise would be short-term in nature.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant Impact. Actions to comply with the General WDRs could involve minor earthmoving and construction that would generate increased noise above ambient levels. Although construction activities would generally be small in scale, they could temporarily generate noise. Noise generating activities would, however, have to comply with their respective county standards to keep noise levels to less than significant levels. Construction activities would occur on rural land generally located away from schools, hospitals, and other sensitive receptors. Therefore, construction activities that may result from compliance with the General WDRs would not result in substantial noise, and the impacts would be less than significant.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No impact. The General WDRs would not cause any permanent increase in ambient noise levels, including aircraft noise. Therefore, it would not expose people living within an area subject to an airport land use plan to excessive noise and thus, no impact would occur.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No impact. The General WDRs would not cause any permanent increase in ambient noise levels, including aircraft noise. Therefore, it would not expose people living in the vicinity of a private airstrip to excessive noise and thus, no impact would occur.

XIII. POPULATION AND HOUSING

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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)?				X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

Background

Implementation of the General WDRs would occur in areas where the dominant land use is agriculture. Vineyard properties typically contain structures including one or more residences, equipment sheds, wells, roads and road crossings.

Discussion of Impacts

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)?

No Impact. Actions to implement the General WDRs would not affect the population of the Sonoma Creek and Napa River Watersheds. It will not induce growth through such means as constructing new housing or businesses, or by extending roads or infrastructure. Implementation of the General WDRs would not displace any existing housing or any people that would need replacement housing.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No impact. Refer to response to Item XIII a), above.

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No impact. Refer to response to Item XIII a), above.

XIV. PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
PUBLIC SERVICES-- Would the project:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?				X
Police protection?				X
Schools?				X
Parks?				X
Other public facilities				X

Background

This section characterizes existing and proposed public services in Napa River and Sonoma Creek watersheds and evaluates changes that may result from actions to comply with the General WDRs. Public services include services that address community needs and are usually provided by local or regional government, although they may be provided through private contracts. Public services include fire and emergency response, police protection, airports, schools, libraries, and parks.

Napa County: The County of Napa contracts with the California Department of Forestry (CalFIRE) for fire protection services as the Napa County Fire Department. CalFIRE provides administrative support and coordination with six full-time paid stations and nine volunteer fire companies operating under a County Fire Plan. Napa County contracts with the cities of St. Helena and Calistoga, and Schell-Vista Fire Protection District for the provision of fire protection services to specified unincorporated areas adjoining these agencies. The Napa County Fire Department provides fire and emergency service dispatching for the American Canyon Fire Protection District, City of St. Helena, Calistoga and Napa State Hospital Fire Departments. The Town of Yountville contracts with the County to provide fire services to those jurisdictions.

The Napa Sheriff's Office maintains several substations in various locations throughout Napa County including the City of Napa, Yountville, St. Helena, Lake Berryessa and Angwin. Within the County limits are several incorporated cities and towns. These include American Canyon, Napa, Yountville, St. Helena and Calistoga. The Sheriff's Office provides police services for American Canyon and Yountville.

Sonoma County. Land located in unincorporated Sonoma County is under the jurisdiction of the Sonoma County Department of Emergency Services, Fire Services Division, and County Service Area #40. Fifteen volunteer fire companies comprise CSA #40. In addition, 17 Fire Protection Districts are operated by the Fire Division of the Department of Emergency Services. Additional fire protection in the unincorporated areas of the county is provided by the California Department of Forestry and Fire Protection. Emergency Medical Service (EMS) systems in Sonoma County is a blend of First Responder agencies, ground and air ambulance providers, EMS – Fire Dispatch Center, and acute care receiving facilities. Unincorporated Sonoma County receives police protection and coroner and correctional services from the Sonoma County Sheriff's Department. The Sheriff maintains 24-hour patrol from five substations and a main office. Peace officers work in patrol, administration, the helicopter unit, boating, civil bureau, and investigations. The City of Sonoma provides police services in their jurisdiction.

Discussion of Impacts

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

i) Fire protection
ii) Police protection
iii) Schools
iv) Parks
v) Other public services

No Impact. The General WDRs would not result in adverse impacts on fire protection or police services or on schools and parks since this General WDRs is not growth inducing nor do they involve construction of substantial new government facilities or the need for physically-altered government facilities. While the General WDRs includes provisions that may result in construction activity on roads or elimination of some unused roads on vineyard properties, the General WDRs requires work on private roads only and would not affect roads used for public safety or fire protection service vehicles. Actions to comply with road-specific water quality requirements in the General WDRs, such as road resurfacing and the installation of rolling dips and water bars, would not limit emergency access to private property. Therefore, the General WDRs would not result in changes to roadway networks on private property that would affect service ratios, response times, or other performance objectives for any public services.

XV. RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
RECREATION – -- Would the project:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

Background

The California Department of Parks and Recreation, Sonoma County Agricultural Preservation and Open Space District, Napa County Regional Park and Open Space District, municipalities, and other private parties own and operate numerous park and recreational facilities in the counties. These facilities provide a variety of outdoor recreational, educational, and sporting opportunities for local residents, Bay Area residents, and visitors for around the world. The open space surrounding these parks and the many vineyards are an integral part of the rural agricultural and open space experience.

Discussion of Impacts

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. Actions to comply with the General WDRs would affect only vineyard facilities and private roads and would have no effect on existing neighborhood and regional parks or other recreational facilities. Therefore, no impacts would occur.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. Refer to response to Item XV a), above.

XVI. TRANSPORTATION/TRAFFIC

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
TRANSPORTATION/TRAFFIC -- Would the project				
a) Exceed the capacity of the existing circulation system, based on applicable measures of effectiveness (as designated in a general plan policy, ordinance, etc.), taking into account all relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				X
b) Conflict with an applicable congestion management program, including but not limited to, level of service standards and travel demand measures and other standards established by the county congestion management agency for designated roads or highways?				X
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?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
e) Result in inadequate emergency access?				X
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				X

Background

Highway 29 is the main highway through the Napa River Watershed. The Silverado Trail, which runs along the east side of the valley, is used mostly by locals to avoid tourist traffic. Two-lane highways lead into Napa County from both the east (Highway 12) and west (Highway 12/121). Highway 12 is the main highway through the Sonoma Creek Watershed. In addition, Sonoma County's highway network includes Highways 116 and 121. Highways 12/121 and 37 connect Sonoma and Napa Counties. Outside of urban areas, most roadways are two-lane rural roads.

General WDRs' water quality requirements could result in modifications to vineyard property roadway networks that are owned and under the control of private landowners/operators and would not affect public roads or maintenance easements.

Discussion of Impacts

a) Exceed the capacity of the existing circulation system, based on applicable measures of effectiveness (as designated in a general plan policy, ordinance, etc.), taking into account all relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

No Impact. The General WDRs may result in an increase in truck traffic. Where BMPs require construction to erect small structures, modify roadway networks, or install detention ponds, minor short-term additional vehicular traffic could increase on individual vineyard parcels. Construction may require importing construction materials such as gravel, pipe, rock, or cement and would require the use of heavy equipment and trucks to move soil, logs, or other materials needed for road repair and/or stream crossings. Minor construction-related truck traffic is likely to be limited in number and duration, be located in rural settings, and would likely not occur during peak traffic periods. Any increase in traffic would be minor, temporary and would be limited to local areas in the vicinity of individual projects and would not create substantial traffic increases on existing street systems.

b) Conflict with an applicable congestion management program, including but not limited to, level of service standards and travel demand measures and other standards established by the county congestion management agency for designated roads or highways?

No Impact. See response to Item XVI a), above. Levels of service would be unchanged.

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?

No impact. The General WDRs would not result in increased air travel or otherwise affect air travel.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No impact. Although private vineyard roads may require erosion control treatment, compliance actions taken under the General WDRs do not require the construction of new roads, generate new hazards, or result in roads that are incompatible with vineyard operational uses. No road design or construction hazards would occur.

e) Result in inadequate emergency access?

No Impact. The General WDRs would result in grading and erosion control actions on unpaved roads that are not typically used for emergency access. Therefore, the General WDRs would not result in inadequate emergency access and no impacts would occur. Refer also to response to item XIV (a), Public Services, above.

f) Result in inadequate parking capacity?

No Impact. Because the General WDRs would not increase population or provide employment, it would not affect parking demand or supply, and no impacts would occur.

g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

No impact. Because the General WDRs would not generate ongoing motor vehicle trips, it would not conflict with adopted policies, plans, or programs supporting alternative transportation.

XVII. UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
UTILITIES AND SERVICE SYSTEMS - Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
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?				X
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?				X
g) Comply with federal, state, and local statutes and regulations related to solid waste?				X

Background

Napa and Sonoma counties are fully served by public services including fire and police protection, schools, parks, wastewater treatment plants, and other public facilities (refer to discussion in Section XIV above). In Napa County, water supply is provided by a series of

municipal dams and groundwater wells. In Sonoma County, the Sonoma County Water Agency provides surface and groundwater derived mainly from the Russian River watershed.

Discussion of Impacts

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No Impact. The General WDRs do not include changes to wastewater treatment facilities and no impacts would occur.

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?

No Impact. Refer to response to Item XVII a), above.

c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. The General WDRs would not include construction of new or expanded municipal stormwater drainage facilities or other drainage system affecting any non-agricultural activities and no impacts would occur. The changes to vineyard and road drainage systems that would result from the General WDRs would reduce erosion, sedimentation, peak runoff, and flooding, all beneficial environmental effects.

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

No Impact. Because the General WDRs would not increase population or provide employment, it would not require an ongoing water supply. It would also not require ongoing wastewater treatment services and no impacts would occur.

e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact. See response to Item XVII d), above.

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

No Impact. The General WDRs would not substantially affect municipal solid waste generation or landfill capacities and no impacts would occur.

g) Comply with federal, state, and local statutes and regulations related to solid waste?

No Impact. See response to Item XVII f), above.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
MANDATORY FINDINGS OF SIGNIFICANCE --				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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?			X	
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	X			
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?			X	

Background

The General WDRs permit discharges from existing and future vineyards that meet the eligibility criteria and adhere to all of the General WDRs requirements. The General WDR's compliance actions may have a physical impact on the environment. Other actions under the existing water quality and resource conservation regulations that may, together with the General WDRs, effect the environment, are listed below.

Napa County Conservation Regulations

Napa County General Plan Stream Setback Policies

Sonoma County Vineyard Erosion and Sediment Control Ordinance (VESCO)

Sonoma County Stream Setback Ordinance

Sonoma County Tree Removal Ordinance

Sonoma County General Plan Water Resources Element Policies

General Plan policies and other vineyard regulation in the cities of Calistoga, Napa, Sonoma, St. Helena, and Yountville.

The adoption of the General WDRs would not result in the relaxation of water quality standards and would reduce non-point source pollutant discharge from existing vineyards and roads (existing conditions). New vineyards covered by the General WDRs would not be allowed to increase erosion and runoff.

Discussion of Impacts

a-c A complete analysis of mandatory findings of significance, including cumulative impacts of the proposed project, will be provided in the EIR.

REFERENCES, PERSONS CONTACTED, AND REPORT PREPARERS

Association of Bay Area Governments (ABAG), *Bay Area 2005 Ozone Strategy*, 2005

Bay Area Air Quality Management District, *A Resolution of the Directors of the Bay Area Air Quality Management District Adopting Thresholds For Use In Determining The Significance of Project's Environmental Effects under the California Environmental Quality Act,* Resolution 2010-06, 2010.

California Regional Water Quality Control Board, San Francisco Bay Region (Water Board). *Staff Report - Napa River Sediment TMDL and Habitat Enhancement Plan, 2009.*

California Regional Water Quality Control Board, San Francisco Bay Region (Water Board). *Staff Report - Sonoma Creek Watershed Sediment TMDL and Habitat Enhancement Plan, 2008.*

California Regional Water Quality Control Board, San Francisco Bay Region (Water Board). *Staff Report - Napa River Pathogen TMDL, 2006a.*

California Regional Water Quality Control Board, San Francisco Bay Region (Water Board). *Staff Report - Sonoma Creek Watershed Pathogen TMDL, 2006b.*

California Regional Water Quality Control Board, San Francisco Bay Region (Water Board). *San Francisco Bay Basin Water Quality Control Plan (Basin Plan)*, 2007.

Five Counties Salmon Conservation Program. 2002. *A Water Quality and Stream Habitat Protection Manual for County Road Maintenance in Northwestern California Watersheds*. September.

Marcus, L. Personal communication, November 13, 2012.

Napa County, Environmental Management Department, *Draft Napa County Climate Action Plan*, 2011.

Napa County, *General Plan,* June 2009.

North Carolina Cooperative Extension Service (NCCE). 1997. *Best Management Practices for Agricultural Nutrients, Publication AG-439-20*. (http://www.soil.ncsu.edu/publications/Soilfacts/AG-439-20/)

San Francisco Estuary Institute, *Napa River Watershed Profile: Past and Present Characteristics with Implications for Future Management of the Changing Napa river Valley,* 2012

State of California, Public Resources Code 21000–21177, *California Environmental Quali*ty Act, 2009.

State of California, California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000–15387, *California Environmental Quality Act (CEQA) Guidelines*, 2010.

State Water Resources Control Board (State Board) 2004. *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program, May 20, 2004.* Sacramento, California: California Environmental Protection Agency, State Water Resources Control Board.

Sonoma County Agricultural Commissioner's Office. 2010. *Best Management Practices for Agricultural Erosion and Sediment Control.*

Sonoma County, *General Plan, Resolution No. 10-0920,* 2010.

Steiner, D. Personal Communication (e-mail), October 4, 2012.

Trso, Martin, Abstract for Vineyard Property Storm Runoff Impact Assessment, 2011

University of California, Davis (UC Davis). *Statewide Integrated Pest Management Program*. http://www.ipm.ucdavis.edu/PMG/selectnewpest.grapes.html

U.S. Geological Survey, 2001

Watershed Information Center and Conservancy of Napa County, *Baseline Data Report*, November 2005.

Report Preparers and Contacts

California Regional Water Quality Control Board, San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

James D. Ponton, PG
Senior Engineering Geologist
510-622-2492
Jponton@waterboards.ca.gov

Anya Starovoytov,
Environmental Scientist
510-622-2506
astarovoytov@waterboards.ca.gov

San Francisco Bay Regional
Water Quality Control Board

APPENDIX D: Response to Comments on the Draft EIR

TABLE OF CONTENTS

I. INTRODUCTION 1
A. PURPOSE OF THE RESPONSE TO COMMENTS DOCUMENT 1
B. ENVIRONMENTAL REVIEW PROCESS 1
C. DOCUMENT ORGANIZATION 2
D. OVERVIEW OF REVISIONS TO THE DRAFT EIR 3

II. LIST OF COMMENTERS 5

III. COMMENTS AND RESPONSES 7

I. INTRODUCTION

A. PURPOSE OF THE RESPONSE TO COMMENTS DOCUMENT

This document has been prepared to respond to comments on the draft Environmental Impact Report (draft EIR – State Clearinghouse No. 2014072013) prepared for the General Waste Discharge Requirements for Vineyard Properties in the Napa River and Sonoma Creek Watersheds (General Permit). Pursuant to the California Environmental Quality Act (CEQA), the draft EIR analyzes environmental effects of reasonably foreseeable actions that could be taken to comply with the General Permit and recommends mitigation measures to reduce potentially significant impacts. The purpose of the General Permit is to reduce the discharge of sediment, storm runoff, and other pollutants from vineyard properties in the Napa River and Sonoma Creek watersheds. The General Permit requires implementation of management actions to control sediment discharges and storm runoff increases from farms and roads, and also to control pesticide and nutrient discharges from farms, in order to comply with water quality requirements. The EIR prepared for the project identifies and discusses potential impacts and mitigation measures.

The final EIR for the General Permit includes the draft EIR and this response to comments document. The response to comments document contains all written comments received during the public review period on the draft EIR, provides responses to comments on the draft EIR, and identifies revisions to the draft EIR, as necessary, in response to these comments or to amplify and clarify material in the draft EIR.

B. ENVIRONMENTAL REVIEW PROCESS

CEQA requires lead agencies to consult with public agencies having jurisdiction over a proposed project and to provide the general public with an opportunity to comment on the draft EIR.

The Water Board used several methods to solicit input on the draft EIR. These methods included the use of email (Lyris) notifications, web-postings to the San Francisco Bay Regional Water Quality Control Board's (Water Board's) website at http://www.waterboards.ca.gov/sanfranciscobay, newspaper notifications in papers of general circulation in the Napa River and Sonoma Creek watersheds (the project area), and targeted meetings with public agencies, stakeholders, and other interested parties. Lyris notifications also included creating a subscription email list, specific to the vineyard program, to insure directed outreach to parities who have expressed interest in the General Permit and EIR.

On July 7, 2014, the Water Board released the Notice of Preparation (NOP). The NOP was posted to the Water Board's website and disseminated to interested parties via Lyris. The NOP provided notice to the public of a CEQA scoping meeting for the draft EIR. This CEQA scoping meeting was held on July 23, 2014 at the Napa County Agricultural Commissioner's Office in Napa. Written comments soliciting input on the scope and content of the EIR were provided through August 6, 2014.

On July 14, 2016, the Water Board filed a Notice of Completion and Environmental Document Transmittal with the State Clearinghouse for the draft EIR and provided the requisite number of copies of this document. It was assigned a project number by the State Clearinghouse: SCH#2014072013.

The draft EIR was distributed to various public agencies, responsible agencies, and interested individuals. Copies of the document were made available at the Sonoma County Library, Napa County Main Library, and main office of the Water Board at 1515 Clay Street, Oakland. The public was notified of the availability of the draft EIR through the Water Board's website (http://www.waterboards.ca.gov/sanfranciscobay/). Electronic copies of the documents also were made

available by posting it to the Water Board's website. The review period established by the State Clearinghouse started on July 15, and although originally scheduled to close on August 29, 2016, was extended through September 14, 2016, at the request of interested parties. Similarly, the comment period on the draft General Permit, which began in on July 15, 2016, was extended until December 12, 2016, to accommodate stakeholder requests for a time extension.

A Notice of Availability (NOA) to comment on the draft EIR was released on July 14, 2016, and distributed via Lyris notification, posting to the Water Board's website, with publication of the NOA in the Santa Rosa Press Democrat and Napa Valley Register on July 15, 2016. On July 26, 2016, the Water Board hosted a public meeting at the City of Napa's Library to discuss the scope of the General Permit and to answer questions.

Between June and December of 2016, Water Board staff met with the following interested parties to discuss the scope and conditions of the General Permit: a) the Conservation Committee of the Napa County Farm Bureau on June 1, September 7, and November 2; b) the staff and directors of the Napa County Resource Conservation District on October 24; c) a coalition of agricultural organizations on October 28 and November 14; d) the Living Rivers Council on November 29; e) San Francisco BayKeeper on November 30; and f) staff of NOAA Fisheries and the California Land Stewardship Institute on December 5.

Following the close of the comment period on December 12, 2016, Water Board staff reviewed comments received and prepared a Staff Report that detailed proposed changes to the draft General Permit in light of the comments received. The Staff Report was prepared to support an informational workshop on the draft General Permit held at the Elihu Harris State Building, 1515 Clay Street, Oakland on April 12, 2017. The workshop was publically noticed, along with the Staff Report, on March 16, 2017, via Lyris and web posting. The intent of the April workshop was to receive public testimony on proposed changes to the draft General Permit.

C. DOCUMENT ORGANIZATION

This response to comments document consists of the following chapters:

- *Chapter I: Introduction*. This chapter discusses the purpose and organization of this response to comments document.
- *Chapter II*: *List of Commenters and compilation of comment letters received.* This chapter contains a list of all commenters who submitted written comments during the review period.
- *Chapter III*: *Responses to comments:* This chapter contains numbered excerpts from all comment letters received on the draft EIR along with responses to comments on each CEQA-related comment received during the review period. Each response is keyed to the preceding comment letters provided in Chapter II.

D. OVERVIEW OF REVISIONS TO THE DRAFT EIR

The Water Board revised the draft EIR to address responses to public comments. A summary of the changes is provided below. The changes in general reflect minor content updates, corrections to typographical errors, and clarifications.

Executive Summary

- **Table E-1. Summary of Impacts, Mitigation Measures, and CEQA Findings for the Action Alternatives.** The final EIR was corrected to: a) change the impact conclusions for Impacts 4.3, 4.4, and 4.5 from "no impact" to "less than significant impact," b) provide some minor clarifications to support these conclusions, and c) distinguish impacts to "forest land" versus "timberland."

- **Table E-1. Summary of Impacts, Mitigation Measures, and CEQA Findings for the Action Alternatives.** A clerical error related to Impact 4.2 was corrected.

Chapter 2

- **Table 2.2. Characteristics of Storm-Proofed Roads.** The list of agencies that may utilize the EIR was updated to include the Sonoma Valley Groundwater Sustainability Agency.

Chapter 3

- **Section 3.3. Economic Considerations.** Text was added providing some minor clarifications to the description of economic considerations provided.

Chapter 8

- **Section 8.2. Water Quality.** Text was added clarifying the description of baseline conditions.

- **Section 8.2. Water Quality.** Text was added to address the General Permit's performance standard for the control of pesticide discharges.

- **Section 8.5. Regulatory Setting.** A discussion of the State's Antidegradation Policy was added.

- **References.** The list of references cited was updated.

Chapter 9

- **References.** The list of references cited was updated.

Chapter 10

- **Section 10.2.4. Waiver Enrollment Criteria Project Alternative.** Text modified to correct clerical mistakes.

Appendices

- **Appendix B. GIS Analysis.** Text was added to clarify accounting for contiguous parcels under the same ownership.

- **Appendix C. Notice of Preparation including attached Initial Study.** Modified to correct clerical mistake in Table XVI. TRANSPORTATION/TRAFFIC.

II. LIST OF COMMENTERS

Ten comment letters were received during the draft EIR review period as shown below:

Comment Letter	Comment Received From	Date of Letter
1	Coalition of Agricultural Organizations	September 14, 2016
2	Assembly Member Dodd	August 25, 2016
3	San Francisco BayKeeper	September 14, 2016
4	United Winegrowers of Sonoma County	September 13, 2016
5	California Farm Bureau Federation	September 14, 2016
6	City of Napa	September 14, 2016
7	Living Rivers Council	September 14, 2016
8	River Run and Bean Vineyards	September 14, 2016
9	County of Napa	December 12, 2016
10	Coalition of Agricultural Organizations (additional CEQA Comments)	December 12, 2016

COMMENT LETTERS

Letter 1

September 14, 2016

Mr. Mike Napolitano
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, 14th Floor
Oakland, CA 94612
Via email: mnapolitano@waterboards.ca.gov

Re: Draft EIR Comments

Dear Mr. Napolitano:

The Wine Institute, Napa Valley Vintners, Winegrowers of Napa County, California Association of Winegrape Growers, Napa County Farm Bureau, Sonoma County Farm Bureau and Napa Valley Grapegrowers provide the following comments on the Draft Environmental Impact Report (DEIR) prepared for the Draft General Waste Discharge Requirements for Vineyard Properties in the Napa River and Sonoma Creek Watersheds (General WDRs). Our organizations recognize that maintaining a healthy functioning watershed is essential to protecting agriculture, our livelihoods and a healthy ecosystem. However, we have concerns with the DEIR's lack of analysis of various impacts that the General WDRs will have on the environment, and with the DEIR's inadequate alternatives analysis. Specific comments on the DEIR are as follows:[1] 1-1

I. Policy Context of the Project

CEQA requires that the EIR identify the policy and planning context in which the project is proposed. Here, the planning context is clear: the Porter-Cologne Water Quality Control Act requires that "prior to implementation of any agricultural water quality control program, an estimate of the total cost of the program, together with an identification of potential sources of financing, shall be indicated." (Cal. Wat. Code § 13141.) More generally, any Water Board adoption of water quality requirements "shall take into consideration" "economic considerations." (Cal. Wat. Code § 13241, 13263.) Although CEQA does not require analysis of economic impacts (as noted in section 3.3 of the DEIR), CEQA's requirement for identification of the policy and planning context mandates 1-2

[1] While the comments contained herein focus on the DEIR, some of the comments pertain to the General WDRs themselves. Given that comments are not due on the General WDRs until December 12, 2016, such comments will not be exhaustive and may be resubmitted in a separate comment letter focused on the General WDRs.

that the DEIR should reflect that consideration of economic impacts is required under Water Code sections 13141, 13241 and 13263. Furthermore, the consideration of economic impacts pursuant to Water Code section 13141, even if required in the General WDRs, should include examination of broader economic impacts on property owners related to compliance with the General WDRs, and financing sources that could assist property owners in complying. With respect to economic considerations under Water Code section 13263, the Regional Board is required to consider the factors specified in Water Code section 13241 when it adopts waste discharge requirements, which includes consideration of costs to the discharger. In contrast, the DEIR's discussion of economic impacts pertains only to the conversion of vineyard land into other land uses. (DEIR, pp. 87–88.)

1-2 cont.

II. Environmental Impact Analyses

GIS Analysis of Best Management Practice Impacts

The DEIR analysis of the impact of the Best Management Practices (BMP) is based on GIS analysis that "estimates planted vineyard and total property acreage that would be enrolled in the proposed General Permit (i.e., all vineyard properties where 5 acres or more are planted in vineyard)." (DEIR Appendix B.) In addition to containing significant data gaps, this analysis fails to account for impacts associated with lands contiguous to vineyard parcels that are under the same ownership. These lands are currently within the scope of applicability for the General WDRs. Accordingly, the DEIR has failed to analyze any impacts of including these non-vineyard properties for coverage under the General WDR.

1-3

In addition to other significant data gaps, the GIS analysis of roads only included parcels with vineyard plantings in the estimation of the scope of actions needed to meet road sediment discharge performance standards. (DEIR, Appendix B; DEIR Figure 2-2; DEIR p. 31.) It does not include any data about roads on parcels contiguous to vineyard parcels, which would be subject to the General WDR if under the same ownership as the vineyard parcel.[2] (General WDR, p. 1, ¶ 2.) Failing to include these parcels in the DEIR's analysis of environmental impacts generally creates an inaccurate portrayal of the General WDRs' impacts on road construction, air quality, and biological resources. Additionally, although not an environmental impact, the DEIR's analysis of the impacts based on the GIS data and estimates in Appendix B grossly underestimates the scale of the work that landowners must undertake and the economic impacts on property owners if the General WDRs are adopted as currently drafted.

In order to address this issue, the General WDRs should be revised to apply only to those parcels containing greater than five acres of vineyard, because the GIS data considered in the EIR accurately reflects these lands. Alternatively, the DEIR should be revised with additional data on contiguous parcels to better represent the true scope of impacts that the General WDRs will have on the environment.

Agricultural Impacts

The DEIR concludes that there are no impacts to agricultural resources or that they are "less-than-significant" because land is not converted from agricultural uses to non-agricultural uses. (DEIR, p. 111.) The DEIR concludes that the General WDRs will not convert any prime, unique, or

1-4

[2] The General WDR's definition of Vineyard Properties would include some lands considered Rural Lands, as defined in the TMDLs. (San Francisco Bay Regional Water Quality Control Board [RWQCB], Resolution R2-2009-0064, Exh. A, p. 12; RWQCB, Resolution R2-2008-0103, Exh. A, p. 14.) The TMDLs separately discussed Vineyards. (*Id.*)

statewide important farmland to non-agricultural use based on the fact that "BMPs that may be employed in farming areas…already have been implemented at many properties… and have been found to be compatible… and don't require a significant reduction in footprint of the farm and… BMPs that would be implemented on unpaved roads will result in an overall reduction in road maintenance costs." (DEIR, Table E-1, Impact 4.1.) This conclusion is erroneous, not supported by any evidence, and ignores the actual analysis required to be conducted under CEQA.

1-4 cont.

The DEIR must consider whether prime farmland, unique farmland, or farmland of statewide importance would be converted to a *non-agricultural use*. (Cal. Code Regs., tit. 14, § 15387, App. G.) First, the DEIR does not identify how many affected acres of land would be considered prime, unique, or of statewide importance. (See DEIR, p. 111.) This provides no context for the DEIR's discussion of impacts to these agricultural resources. Additionally, the DEIR only considers the total conversion of parcels into non-agricultural uses and ignores the fact that converting portions of parcels into riparian lands, vegetative setbacks, detention ponds, or buffers is the conversion of farmland to non-agricultural use. Because the General WDRs may require this kind of conversion, it must be disclosed and analyzed under CEQA.

It is irrelevant that other vineyards have already implemented some of the BMPs since those are part of the existing conditions, not project impacts. Although the historical trends cited in the DEIR indicate that farmland will not be converted to non-agricultural uses, those past trends cannot provide a reliable prediction of effects under the General WDRs, as the context is quite different: the "BMPs employed in farming areas" cited in the DEIR were voluntary; the BMPs to be employed under the General WDRs are not. It is entirely possible that the non-voluntary nature of BMPs to be employed under the General WDRs will result in more conversion of farmland to non-agricultural uses. Accordingly, the DEIR should analyze the impacts of future implementation of BMPs that could convert some farmland acreage into a non-agricultural use. Further, a reduction in road maintenance costs is also irrelevant to the conversion of agriculture to other uses, since economic impacts are not impacts on the physical environment. (Cal. Code Regs., tit. 14, § 15131.) The General WDRs will result in the direct conversion of agricultural land to non-agricultural uses, and the scope and nature of these impacts should be disclosed and analyzed.

Forestry Impacts

The DEIR concludes that there are no impacts to forest land or timberland resources because the General WDRs do not authorize discharges if BMP construction or activity would involve the conversion of forest lands. (DEIR, Table E-1, Impacts 4.2, 4.4, and 4.5.) However, this conclusion is not supported by substantial evidence or consistent with the language in the General WDR. In fact, the DEIR contains absolutely no analysis to support the conclusion that Impact 4.5 results in no impact. (See DEIR, Section 4.3.1, p. 113.) In addition, the conclusions for these impacts all are premised on the fact that the General WDRs do not provide regulatory coverage for projects that involve the conversion of forestland or timberland.[3] However, the definitions for timberland and forest land differ significantly, such that the assumption that the General WDRs will not affect forest land is unfounded.

1-5

[3] The General WDR states that it does not apply to any new Vineyard Property where vineyard development involves a timber conversion plan or permit. (General WDRs, p. 1, ¶ 5.)

Under CEQA, "Forest land" is land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. (Pub. Resources Code, § 12220(g) incorporated to CEQA through Cal. Code Regs., tit. 14, § 15387, App. G.) Although the DEIR assumes that no forest land will be impacted, the General WDRs do not expressly exclude projects that could involve conversion of forest lands. (DEIR, pp. 49, 113.) In fact, if all forest lands were excluded from the General Permit, it would most likely remove most if not all new vineyard projects from coverage, as well as many existing vineyards requiring native tree removal to implement BMPs or conduct road improvements. For this reason, the DEIR must be revised to analyze the impacts that the General WDRs will have on forest lands. 1-5 cont.

Additionally, the General WDRs only exclude those projects that convert timberland pursuant to a Timber Conversion Plan, which does not account for projects that would qualify for a less than three-acre timber conversion exemption. (General WDRs, p. 1, ¶ 5; see also Cal. Code Regs., tit. 14, § 1104.1a.) The impacts associated with new vineyards using this exemption to convert timberland are not analyzed or discussed in the DEIR. (DEIR, p. 113.) Accordingly, the DEIR conclusions regarding impacts to both forest lands and timberlands is inadequate. Additional analyses and information for these impacts is needed.

Traffic Impacts

Farm Plans, prepared under the General WDRs, directly and indirectly require site evaluations, construction activities related to BMP implementation, and site visits by various professionals. These activities require additional vehicle trips in order to comply with the General WDRs. However, the DEIR does not address traffic impacts. This is surprising, because the Initial Study for the General WDRs states that the project "may result in an increase in truck traffic" and that the construction required on some parcels will temporarily increase vehicular traffic. (General WDR, Initial Study, pp. 66 and 67.) There is no evidence or study cited to support of the conclusion in the Draft General WDRs Initial Study that there would be no impact on traffic. (See *Citizens Association for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151 (holding that an initial study must disclose the data or evidence relied upon).) The DEIR should have disclosed and analyzed potential impacts on traffic, and made conclusions based on that analysis. 1-6

III. Alternatives Analysis

The DEIR states that the purpose of the General WDRs is to address shortcomings in current regulatory programs, such as the Napa County Conservation Regulations Erosion Control Plan and similar Sonoma County regulations. (DEIR, pp. 36–38.) The DEIR states that current county-level regulations lack the ability to retroactively control erosion (only plantings since 1991 must have erosion control plans), do not address road-related erosion sources in vineyards, and do not address hillslope erosion. (DEIR, pp. 37–38.) However, the DEIR rejects project alternatives that would target these issues without sufficient explanation. 1-7

For instance, the DEIR rejected an alternative that would have focused the General WDRs on those properties without an approved Erosion Control Plan pursuant to the Napa County Conservation Regulations. This alternative was inappropriately rejected based on its failure to meet the fundamental project objective of implementing the TMDLs. (DEIR, p. 279.) The DEIR rejects

this alternative without explaining how it fails to satisfy the General WDRs' goal of addressing the shortcomings in the current regulatory scheme, stating that the focus on roads and hillside vineyards would not sufficiently reduce erosion. (*Id.*) It is unclear how the General WDRs, as they currently stand, would afford significantly more erosion control than a combination of existing regulations and a waste discharge requirement that focuses on only those unrelated areas, particularly when existing regulation has improved the health of the Napa River Watershed. It appears that the alternative proposed in DEIR section 10.2.5 would meet the project objectives, and would result in reduced environmental impacts due to its narrower scope. The DEIR does not adequately justify why this alternative was rejected.

1-7 cont.

IV. Conclusion

We appreciate the opportunity to comment on the DEIR for the General WDRs and hope to continue working with the San Francisco Bay Regional Water Quality Control Board as it develops the General WDRs. We seek a manageable and cost-effective regulatory program that encourages participation, compliance, and protects the public interest, while controlling sediment. We advocate a program that moves the ball forward in terms of water quality protection, but does not create duplicative bureaucracy and unnecessary activities and costs that detract from or usurp resources that would otherwise go towards completing projects and implementing programs that address areas of concern where tangible benefits can be achieved -- such as the Napa River Rutherford Reach and Oakville to Oak Knoll Reach Restoration Projects. We hope that the Regional Board will not adopt the General WDRs in their current form, but continue to work toward final action reasonably addressing water quality concerns while simultaneously promoting a program acceptable to all interested parties.

1-8

Finally, we reserve the right to offer additional comments at the hearing.

Sincerely,

Tim Schmelzer
Wine Institute

Rex Stults
Napa Valley Vintners

Michelle Benvenuto
Winegrowers of Napa County

Jesse Ramer
Napa County Farm Bureau

Tito Sasaki
Sonoma County Farm Bureau

Jennifer Putnam
Napa Valley Grapegrowers

Tyler Blackney
California Association of Winegrape Growers

STATE CAPITOL
P.O. BOX 942849
SACRAMENTO, CA 94249-0004
(916) 319-2004
FAX (916) 319-2104

EMAIL
Assemblymember.Dodd@assembly.ca.gov

Assembly
California Legislature

BILL DODD
CHAIR: ASSEMBLY COMMITTEE ON AGRICULTURE
ASSEMBLYMEMBER, FOURTH DISTRICT

COMMITTEES
BUSINESS AND PROFESSIONS
TRANSPORTATION
WATER, PARKS AND WILDLIFE
CHAIR: SELECT COMMITTEE
ON WINE

August 25, 2016

Bruce H. Wolfe
Executive Officer
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Letter 2

RE: Waste Discharge Requirements for Discharges from Vineyard Properties in the Napa River and Sonoma Creek Watersheds

Dear Mr. Wolfe,

I am writing to express concerns with the draft Environmental Impact Report and General Waste Discharge Requirements for discharges from Vineyard Properties in the Napa River and Sonoma Creek Watersheds. I urge the board to consider extending the August 29, 2016, public comment period to allow for additional collaboration between Board staff and stakeholders. The current timeline is particularly burdensome as many vineyards throughout my district are well into the harvest season, limiting their ability to focus on providing comprehensive feedback on this matter.

2-1

It is my hope that an extension would show a good faith effort towards collaboration and ensure new waste discharge requirements are implemented in a fair and responsible manner. I have personally heard from a number of vineyard owners in my district who are concerned that these requirements are being implemented without proper consideration of existing efforts implemented by the vineyard property owners themselves over the last 15 to restore our rivers and watersheds years.

It is my hope that Board staff, industry experts, and environmental leaders can work collaboratively to create a fair and reasonable program that provides significant benefits to the Napa River and Sonoma Creek Watersheds.

If you should have any questions regarding my position on the matter, please feel free to contact my district office at (707) 552-4405.

Sincerely,

Bill Dodd

Bill Dodd
Assembly member, District 4

SAN FRANCISCO BAYKEEPER®

September 14, 2016

Letter 3

Mike Napolitano
California Regional Water Quality Control Board, San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612
Email: MNapolitano@waterboards.ca.gov

Transmitted via Electronic Mail

Re: Draft Environmental Impact Report for Discharges from Vineyard Properties in the Napa River and Sonoma Creek Watersheds

Dear Mr. Napolitano,

On behalf of San Francisco Baykeeper ("Baykeeper") and our more than five thousand members and supporters who use and enjoy the environmental, recreational, and aesthetic qualities of San Francisco Bay and its surrounding tributaries and ecosystems, including the Napa River and Sonoma Creek, I respectfully submit these comments for consideration by the California Regional Water Quality Control Board, San Francisco Bay Region ("Regional Board") regarding the Draft Environmental Impact Report ("EIR") for General Waste Discharge Requirements for Vineyard Properties Located in the Napa River and Sonoma Creek Watersheds ("General Permit" or "Project"). The General Permit's primary objective is to implement the Total Daily Maximum Loads ("TMDLs") for sediment for the Napa River and Sonoma Creek. If the General Permit only authorized sediment discharges from vineyard properties, then the EIR's analyses appear to be relatively complete. However, in addition to sediment discharges, the General Permit also authorizes pesticide and nutrient discharges from vineyard properties. These secondary objectives must be explicitly recognized and fully analyzed in the EIR. 3-1

The basic purposes of the California Environmental Quality Act ("CEQA") are "to inform the public and decision makers of the consequences of environmental decisions before those decisions are made," and "to protect and maintain California's environmental quality. (*Woodward Park Homeowners Assn., Inc. v. City of Fresno* (2007) 150 Cal.App.4th 683, 691; *Communities for a Better Envt. v. Cal. Res. Agency* (2002) 103 Cal.App.4th 98, 106; *see* Pub. Res. Code § 21000 *et seq.*; *see also* 14 Cal. Code Regs. (hereinafter, "Guidelines") § 15121.) Generally, when a public agency proposes to approve or carry out a project, it must prepare and certify an EIR if the project *may* have a significant effect on the environment. (Pub. Res. Code §§ 21080(a), 21100(a), 21151(a).) As the California Supreme Court has explained, the EIR is "the heart of CEQA." (*Laurel Heights Improvement Assn. v. Regents of University of Cal.* (1988) 47 Cal.3d 376, 392.) An EIR must reflect a good faith effort at full disclosure, including "detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." (*Id.* at 405.) In accordance with the purposes of CEQA, an EIR must fully consider and disclose all significant environmental impacts of a project, and, where deemed to be

significant, describe and implement all feasible mitigation measures and alternatives that would reduce such impact to less-than-significant levels.

As currently drafted, the EIR does not include an adequate analysis to inform the public of the environmental impacts of authorizing pesticide and nutrient discharges to the Napa River and Sonoma Creek watersheds, neglects to mitigate the environmental impacts from pesticide discharges, and fails to include a reasonable range of alternatives. In order to correct the deficiencies in the EIR, the Regional Board must make the following seven revisions:

(1) *Include the control of pesticide and nutrient discharges as objectives in the Project Description;*
(2) *Establish the baseline for pesticide discharges from vineyard properties;*
(3) *Analyze the effects of pesticide discharges on special-status species;*
(4) *Analyze the environmental impacts of authorizing pesticide discharges on water quality;*
(5) *Require additional mitigation measures to reduce environmental impacts from pesticide discharges;*
(6) *Discuss additional alternatives to complete a reasonable range of alternatives; and*
(7) *Redefine the no project alternative.*

3-1 cont.

Each of Baykeeper's suggested revisions to the EIR are discussed in detail below.

I. The EIR Fails to Include the Control of Pesticide and Nutrient Discharges as Objectives in the Project Description.

The EIR repeatedly states that the General Permit would control pesticide and nutrient discharges, in addition to the primary project objective of implementing the Napa River and Sonoma Creek sediment TMDLs, but these secondary objectives are omitted from the Project Description. Because the Project Description does not include all aspects of the Project, the EIR fails to meet CEQA's requirements.

"An accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR." (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 193.) The CEQA Guidelines define the Project as the "whole of the action." (Guidelines § 15378(a).) An EIR's Project Description must include a statement of the objectives sought by the proposed project. (Guidelines § 15124(b).) Stating the objectives of a project aids decision makers in preparing findings and identifying alternatives. (*Id.*; *see also County of Inyo*, 71 Cal.App.3d at 192-93.)

3-2

Here, Section 2.2, Project Objectives, of the EIR lists several secondary project objectives, but is silent regarding pesticide and nutrient discharge controls. (*See* EIR at 45; *see also* EIR at 275.) Despite not being included as part of the Project Description, controlling pesticide and nutrient discharges is clearly part of the Project; the EIR consistently refers to these objectives when discussing the General Permit's requirements. (*See* EIR at 1, 30, 40, 47, 53, 85, 110, 245.) Because the Project Description fails to include this aspect of the Project, it is legally deficient. (*See Santiago County Water Dist. v. County of Orange* (1981) 118 Cal.3d 818, 829.) Moreover, the way that

controlling pesticide and nutrient discharges is referenced in the EIR is confusing and inconsistent, as they appear to have been included in the EIR as an afterthought. These inconsistencies must be corrected by explicitly recognizing the control of pesticide and nutrient discharges as secondary project objectives in the Project Description.

Had the Regional Board included the control of pesticide and nutrient discharges in the Project Description, it is likely that the EIR would have included related environmental impacts, mitigation measures, and alternatives, which are also omitted from the EIR. The lack of discussion of pesticides and nutrient discharges in the EIR is shocking, considering the impacts associated with these potentially toxic discharges on special-status fish species and water quality, as described more fully below. Based on Baykeeper's knowledge, the Regional Board does not plan to issue a conditional waiver for irrigated lands, like in Region 3[1], or additional waste discharge requirements ("WDRs") for the discharge of pesticides and/or nutrients in Region 2. Thus, the General Permit is the only means by which the Regional Board intends to permit and regulate pesticide and nutrient discharges by the permittees.[2] Without the addition of the control of pesticide and nutrient discharges to the Project Description, the EIR is deficient. Once these objectives have been properly included in the Project Description, the Regional Board must revise the EIR to analyze the impacts from permitting and regulating pesticide and nutrient discharges. 3-2 cont.

II. <u>The EIR Fails to Establish the Baseline for Pesticide Discharges from Vineyard Properties.</u>

The EIR's description of the Environmental Setting must be revised to describe existing pesticide discharges to the Napa River and Sonoma Creek and establish the baseline for such discharges. An EIR must include "a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published." (Guidelines § 15125(a); *Communities for a Better Envt. v. S. Coast Air Quality Mgmt. Dist.* (2010) 48 Cal. 4th 310, 315, 321.) The environmental setting typically constitutes the "baseline physical conditions by which a lead agency determines whether an impact is significant." (*Id*.) Additionally, an EIR must demonstrate "that the significant environmental impacts of the proposed project were adequately investigated and discussed and it must permit the significant effects of the project to be considered in the full environmental context." (Guidelines § 15125(c).) 3-3

Here, the Regional Board cannot properly determine whether or not impacts from pesticide discharges are significant, since they have failed to establish a baseline for comparison. (*See* EIR at 31-39.) At a minimum, the EIR must be revised to include a description of what pesticides are being applied and what quantities of pesticides are being applied at vineyard properties in the Napa River and Sonoma Creek watersheds. The Regional Board should consult the California Department of Pesticide Regulation to obtain this information. (Guidelines § 15129.)

Without an established baseline, the Regional Board cannot conclude that the General Permit will not increase pesticide discharges, nor can it conclude pesticide discharges will decrease, as there

[1] *See generally* California Regional Water Quality Control Board, Central Coast Region, Order No. R3-2012-0011, as modified by Order No. WQ-2013-0101, *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands* (2013) ("Region 3 Ag Waiver"). Attached hereto as Attachment 1.

[2] Although local programs somewhat control pesticide and nutrient discharges, the General Permit is the only mandatory requirement with which all permittees must comply.

are no factual bases for these conclusions. "The EIR must contain facts and analysis, not just the bare conclusions of a public agency." (*Santiago County Water Dist.*, 118 Cal.App.3d at 831.) CEQA mandates public access to "the basis for [an EIR's] opinion so as to enable [the public] to make an independent, reasoned judgment." (*Id*.) Establishing a baseline for pesticide discharges from vineyard properties will enable the Regional Board and the public to determine the full environmental impacts of the General Permit. The EIR must be revised to establish a baseline for pesticide discharges from vineyard properties to the Napa River and Sonoma Creek watersheds. 3-3 cont.

III. The EIR Fails to Analyze the Effects of Pesticide Discharges on Special-Status Species.

Pesticide discharges to the Napa River and Sonoma Creek watersheds have adverse impacts on special-status species and must be analyzed in the EIR. (*See* Pub. Res. Code § 21002.1(a) ["the purpose of an [EIR] is to identify the significant effects on the environment of a project"].) The EIR recognizes that critical habitat for the federally-listed Central California Coast Steelhead has been designated in both watersheds. (EIR at 177.) In addition to Central California Coast Steelhead, locally rare Chinook salmon also inhabit the Project area. (EIR at 30.) However, there is *no* discussion of the impacts of pesticide discharges on special-status fish species in the EIR.[3] The EIR must be revised to include a full discussion of the impacts of pesticide discharges on special-status *fish* species. (*See City of Maywood v. Los Angeles Unified School Dist.* (2012) 208 Cal.App.4th 362, 391 [an EIR is legally inadequate if there is no evidence that a lead agency studied an environmental impact].) 3-4

Scientific studies indicate that federally-listed Central California Coast Steelhead and locally rare Chinook salmon are adversely impacted by pesticide discharges. The National Marine Fisheries Service ("NMFS") has issued biological opinions under Section 7 of the Federal Endangered Species Act for the Environmental Protection Agency's registration of pesticides containing Chlorpyrifos, Diazinon, and Malathion,[4] and pesticides Oryzalin, Pendimethalin, and Trifluralin.[5] Both of NMFS' biological opinions concluded that exposure to the listed pesticides is likely "to jeopardize the continued existence" of Central California Coast Steelhead and Chinook salmon, and is likely "to result in the destruction or adverse modification of the critical habitat."[6] Furthermore, scientists have identified pesticide exposure as a cause of feminization of male Chinook salmon in the Napa River due to exposure to high levels of xenoestrogens (compounds that mimic the effects of estrogen).[7]

---

[3] In fact, the only discussion of impacts of pesticides on any biological resources is a tangential reference to pesticide controls in the analysis of environmental impacts on special-status bird species. (EIR at 194 [Impact 6-3 Noise generated by heavy equipment used to construct/install BMPs could disrupt breeding and/or nesting by special-status bird species].)

[4] National Marine Fisheries Service, *Endangered Species Act Section 7 Consultation Biological Opinion: Environmental Protection Agency Registration of Pesticides Containing Chlorpyrifos, Diazinon, and Malathion* (2008) (NFMS 2008), *available at* http://www.nmfs.noaa.gov/pr/pdfs/pesticide_biop.pdf. Excerpt attached hereto as Attachment 2.

[5] National Marine Fisheries Service, *Endangered Species Act Section 7 Consultation Final Biological Opinion: Environmental Protection Agency Registration of Pesticides Oryzalin, Pendimethalin, Trifluralin* (2012) (NMFS 2012), *available at* http://www.nmfs.noaa.gov/pr/pdfs/consultations/pesticides_batch5opinion.pdf. Excerpt attached hereto as Attachment 3.

[6] NMFS 2008 at 391-92; *see* NMFS 2012 at 639-40.

[7] *See* Sedlak, David, *Identifying the Causes of Feminization of Chinook Salmon in the Sacramento and San Joaquin River System*, Delta Stewardship Council, http://deltacouncil.ca.gov/scienceprogram/projects/identifying-causes-

Despite these known impacts of pesticides on special-status fish species, the EIR fails to discuss the impact of permitting discharges of such substances on these species, as required by CEQA. Pesticide discharges and associated water toxicity will likely have significant impacts on special-status fish species and their habitats, and must be fully analyzed in the EIR. 3-4 cont.

IV. The EIR Fails to Analyze the Environmental Impacts on Water Quality of Authorizing the Discharge of Pesticides.

The EIR must be revised to include an analysis of the environmental impacts of authorizing pesticide discharges on the water quality of the Napa River and Sonoma Creek watersheds. (*See* Pub. Res. Code § 21100; Guidelines § 15126.) The General Permit requires the control of pesticide discharges, but in doing so, it also authorizes the permittees to discharge pesticides to surface waters. Thus, the EIR must evaluate the impact of authorizing such pesticide discharges. One would expect to find some reference, if not a full environmental impact analysis, on pesticides in Section 8.2, Water Quality, of the EIR, (EIR at 233-34) but pesticides are not even mentioned. 3-5

Neither Section 8.2, Water Quality, nor Section 8.6, Hydrology and Water Quality Impacts and Mitigation Measures, of the EIR analyze the impacts of pesticide use permitted by the General Permit on water quality. Section 8.2 does not even mention pesticides. (*See* EIR at 233-34.) While Section 8.6 at least mentions pesticides, these references do not amount to an environmental impact analysis. In fact, the EIR only mentions the potential beneficial impact of the Project on water quality, without recognizing the potential negative impacts of pesticide discharges on water quality. (*See* EIR at 244 [Impact 8.1 Compliance with the General Permit would enhance water quality in the Napa River and Sonoma Creek watersheds], 255 [Impact 8.7 Actions taken to comply with the General Permit would result in substantial beneficial reductions in the discharge of polluted runoff and enhancement of water quality].)[8] Pesticide discharges have an evident impact on water quality, and it is unacceptable for the EIR to not include a robust discussion of these impacts.

Pesticide discharges from vineyard properties regulated by the General Permit will likely have significant impacts on water quality in the Napa River and Sonoma Creek watersheds, and must be evaluated in the EIR. (Guidelines §§ 15126, 15216.2.) In Region 2, the highest use of agricultural pesticides is in the Napa River, and subsequently San Pablo Bay.[9] High risk ratio pesticides applied in the Napa River watershed include: Naled, Oxyfluorfen, Flumioxazin,

---

feminization-chinook-salmon-sacramento-and-san-joaquin (last visited Sept. 10, 2016); Lavado, Ramon, et al., Site-Specific Profiles for Estrogenic Activity in Agricultural Areas of California's Inland Waters, 43(24) Envtl. Science & Tech. 9110 (2009). Attached hereto as Attachments 4 and 5, respectively.

[8] The EIR has two tangential references to pesticide controls in its analysis of environmental impacts on water quality. The first notes that BMPs to control for pesticide discharges would not reduce groundwater recharge. (EIR at 245 [Impact 8.2 The overall effect of actions taken to comply with the General Permit would be beneficial, enhancing groundwater recharge].) The second notes that pesticide discharge controls would not affect placement or location of housing in a flood hazard area. (EIR at 255 [Impact 8.8 Actions taken to comply with the General Permit would not affect placement of housing in flood hazard areas].)

[9] Willis-Norton, Ellen and Rebecca Sutton, *Identifying Current Use Pesticides (CUP) to Include in Future RMP Monitoring*, San Francisco Estuary Institute, *available at* http://www.sfei.org/sites/default/files/events/Item_3.2_CUP_monitoring_ECWG_proposal.pdf. Attached hereto as Attachment 6.

Pyraclostrobin, Mancozeb, 1,3-dichloropropene, Dimethoate, Imidacloprid, Paraquat Dichloride, Metam-Sodium, Thiophanate-Methyl, Cyprodinil, Trifloxystrobin, Methomyl, Pendimethalin, 2,4-Dichlorophenoxyacetic acid, Diquat Dibromide, Oryzalin, PCNB, and Triflumizole.[10] According to the most recent data on pesticide use on wine grapes in Napa County, most of these pesticides are still heavily in use.[11]

While the Napa River and Sonoma Creek are not listed as impaired for pesticides, the Regional Board is not excused from analyzing the environmental impacts of permitting pesticide discharges to water quality. Impaired status on a Clean Water Act 303(d) List for a constituent is not a prerequisite for environmental impact analysis of that constituent. The Regional Board must take this opportunity to fully evaluate the impacts of pesticide discharges and prevent the Napa River and Sonoma Creek from becoming impaired for pesticides. 3-5 cont.

The Regional Board may find that the control of pesticide discharges will have a beneficial impact on water quality, thereby justifying the lack of environmental impact analysis in the EIR, but that would be improper under CEQA. An EIR must state the reasons that possible significant effects of a project were determined not to be significant, and therefore not fully discussed in the EIR. (Pub. Res. Code § 21100(c); Guidelines § 15128.) This type of statement may be included in an initial study. (*Id*.) Here, the EIR fails to discuss the environmental impacts of pesticide discharges to water quality. Furthermore, the discussion of pesticide discharge controls in Initial Study: General Waste Discharge Requirements for Vineyard Discharges in the Napa River and Sonoma Creek Watersheds ("Initial Study" or "IS"), attached at Appendix C to the EIR, also fails to meet this burden. (IS at 27.) The IS concludes that "[r]eduction in the use of agricultural chemicals would result in beneficial impacts to water quality and are not further evaluated in the IS." (*Id*.) First, the Initial Study does not state that environmental impacts from pesticide discharges are *not significant*. Second, the short discussion in the IS fails to provide the basis for its conclusion, and merely presents a circular argument. The EIR must provide an "analytically complete and coherent explanation" of its conclusions. (*Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40. Cal.4th 412, 440.) The EIR must be revised to include a meaningful environmental impact analysis of pesticide discharges on water quality.

V. <u>The EIR Fails to Require Mitigation Measures to Adequately Reduce the Environmental Impacts from Pesticide Discharges.</u>

Since the EIR does not analyze the environmental impacts of authorizing the discharge of pesticides from vineyard properties on special-status fish species and water quality, as discussed *supra* in Sections III and IV, it follows that the EIR fails to require mitigation measures to adequately reduce the environmental impacts from pesticide discharges. CEQA requires that an EIR describe feasible measures to minimize each significant environmental effect identified in the EIR. (Guidelines § 15126.4(a)(1)(A).) Furthermore, mitigation measures must "be fully enforceable." (Guidelines § 15126.4(a)(2).) Although the EIR and General Permit include several best management practices ("BMPs") to be implemented which might mitigate the impacts from 3-6

[10] *Id.*
[11] Department of Pesticide Regulation, *2014 Annual Pesticide Use Report Indexed by Chemical: Napa County*, *available at* http://www.cdpr.ca.gov/docs/pur/pur14rep/chemcnty/napa14_ai.pdf. Attached hereto as Attachment 7.

pesticide discharges, these BMPs alone are likely insufficient to mitigate impacts to less-than-significant levels.

The Napa River and Sonoma Creek are at risk of becoming impaired for pesticides, and mitigation measures must be required to significantly reduce pesticide discharges to these threatened watersheds. It is unlikely that the BMPs required in the EIR will achieve this goal. BMP 22, requiring the calibration of pesticide sprayers and protocols to avoid drift; BMP 24, requiring minor construction projects to protect well heads from pesticide spills; and BMP 25, requiring the construction of pesticide storage facilities, (EIR at 59, 81) are not intended to reduce the use of pesticides on vineyard properties—they require controls to prevent accidental pesticide discharges. BMP 23 requires the implementation of integrated pest management practices ("IPM"). (EIR at 59, 81.) While IPM utilizes pest management strategies in addition to pesticide application, the EIR and General Permit do not specify the extent to which IPM should be used (*i.e.*, to the maximum extent practicable). The Regional Board admits in the EIR that the BMPs intended to control pesticide discharges, relative to the CEQA baseline, which the Regional Board has not even established as discussed *supra* in Section II, would be a *modest reduction* in pesticide discharges to state waters. (EIR at 81.) Assuming *arguendo* that a comparison can even be made, a "modest reduction" is inadequate to protect the water quality of the Napa River and Sonoma Creek from the impacts of pesticide discharges, and must be further mitigated. 3-6 cont.

The Regional Board should implement additional mitigation measures to reduce impacts from pesticide discharges to the Napa River and Sonoma Creek watersheds to a less-than-significant level. Prohibiting the discharge of certain pesticides is within the Regional Board's authority. As discussed *supra* in Section III, NMFS has identified several pesticides that put special-status fish species in jeopardy, which the Regional Board should prohibit. Additionally, the Regional Board should require surface water monitoring to track reductions in pesticide discharges. The Farm Water Quality Protection Plan ("Farm Plan") required in section F of the General Permit only requires photo point monitoring. (General Permit, Attachment A at 5.) Pesticide discharges to surface waters cannot be meaningfully monitored via photographs alone. Only by requiring surface water sampling and monitoring can the Regional Board assure that pesticide discharges are reduced. By requiring these additional mitigation measures, impacts from pesticide discharges could be reduced to less-than-significant levels.

VI. The EIR Fails to Adequately Consider a Reasonable Range of Alternatives to the General Permit.

Additional alternatives to the General Permit should be included in the EIR, including expanding the scope of the permittees and adoption of alternative regulatory methods. Under CEQA, the range of alternatives to the proposed project shall include "those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects." (Guidelines § 15126.6(c); *see* Pub. Res. Code §§ 21100, 21002, 21061.) The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to "set forth only those alternatives necessary to permit a reasoned choice," and shall be selected and discussed "in a manner to foster meaningful public participation and informed decision making." (Guidelines § 15126.6(f).) 3-7

All of the alternatives considered in the EIR reduce the scope of permittee coverage. Thus, the EIR improperly reviews only alternatives that would result in more environmental impacts by regulating fewer vineyards. The EIR must evaluate alternatives that "would avoid or substantially lessen any of the significant effects of the project." (Guidelines § 15126(a).) The EIR should have considered, for instance, an alternative which expands permittee coverage to all vineyard properties greater than 1 acre, and then evaluated the comparative merits. Construction sites greater than 1 acre require permitting under the state-wide general permit regulating discharges of pollutants in stormwater associated with construction activity ("Construction Permit").[12] Like the General Permit, sediment is the primary constituent of concern regulated by the Construction Permit.[13] It is inconsistent for the General Permit, which requires construction activities for compliance, to be applicable to vineyard properties greater than 5 acres, when the Construction Permit is applicable to sites one-fifth that size. Arguably, expanding the scope of permittee coverage would still meet the project objectives, and would result in additional beneficial impacts by further reducing polluted discharges to surface waters.

3-7 cont.

The EIR also should have included an alternative that adopts a different regulatory method to control discharges from vineyard properties, such as a conditional waiver of WDRs or discharge prohibitions. Pursuant to Water Code section 13269, discussed *infra* at Section VII, the Regional Board is authorized to waive WDR requirements. (Water Code § 13269(a)(1).) Region 3 has chosen to regulate discharges from irrigated lands in its jurisdiction via a conditional waiver.[14] Waivers of WDRs are conditioned with monitoring program requirements designed to protect water quality, including verification of the adequacy and effectiveness of the waiver's conditions. (Water Code § 13269(a)(2).) Although the EIR does briefly discuss Alternative 10.2.4, Waiver Enrollment Criteria Project Alternative, this alternative merely seeks to reduce the scope of permittees based on proposed enrollment criteria for a terminated waiver of WDRs permitting effort. (EIR at 278.) Under a conditional waiver of WDRs, the objectives of the General Permit would likely be met, and in addition, this alternative would probably require surface water quality monitoring in addition to the photographic monitoring required by the General Permit.

Adding Baykeeper's suggested alternatives would make the EIR's range of alternatives reasonable. Considering alternatives which merely narrow the scope of permittees based on varying criteria is not reasonable.

VII. The EIR Incorrectly Defines the No Project Alternative.

3-8

The EIR's characterization of the no project alternative is incomplete, and does not comport with the requirements of CEQA. Analyzing the no project alternative allows decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. (Guidelines § 15126.6(e)(1).) In addition to discussing the existing conditions at the time the notice of preparation is published, the no project alternative "must discuss what would be reasonably expected to occur in the foreseeable future if the project were not approved."

---

[12] State Water Resources Control Board, Order No. 2009-0009-DWQ, NPDES No. CAS000002, *National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities*, Finding B.18. Attached hereto as Attachment 8.
[13] *Id*. at Finding B.11.
[14] *See generally* Region 3 Ag Waiver.

(Guidelines § 15126.6(e)(2).) Here, the General Permit is not an existing regulatory plan, so the no project alternative is "the circumstance in which the project does not proceed." (Guidelines § 15126.6(e)(3)(B).) However, the analysis should not end there. CEQA is forward-looking, and requires that where the disapproval of the proposed project "would result in predictable action by others, this 'no project' consequence should be discussed." (*Id*.) The EIR must be revised to include a full discussion of the no project alternative and its consequences, as required under CEQA.

The Regional Board must supplement the no project alternative analysis in the EIR to comply with CEQA by discussing the predictable consequences of not approving the General Permit. Section 10.3.1, Alternative 1: No Project, of the EIR only discusses the existing conditions in the project area, stating:

> Under the No Project Alternative, Vineyard Property sediment discharges as identified in the sediment TMDLs, *would not be regulated*. It is highly probable that sediment impairments in the Napa River and Sonoma Creek watersheds would not be resolved. Degraded streambed substrate conditions would persist, and cause significant adverse impacts to spawning and rearing habitat for [special-status species].
>
> As such, the fundamental objective of the proposed project would not be achieved.
>
> Under the No Project alternative, significant impacts to river habitat and to dependent native fish would persist. Because the No Project alternative fails to meet the basic objectives, this EIR does not consider the No Project alternative in further detail.

(EIR at 281 [emphasis added].) This analysis is improperly based on the conclusion that if the General Permit is not approved, then discharges from vineyard properties will continue unregulated. Such a conclusion fails to comply with the requirements of the Porter-Cologne Water Quality Control Act (Water Code § 13000, *et seq*.), and is thus contrary to law. 3-8 cont.

Porter-Cologne provides several mechanisms for a Regional Board to regulate discharges of waste to waters of the state. First, a person or entity discharging or proposing to discharge waste which could affect water quality must submit a report to the Regional Board, unless the Regional Board takes action. (Water Code § 13260; 23 Cal. Code Regs. § 2205 [section 13260 applies to nonpoint source discharges].) Second, the Regional Board may prescribe WDRs for proposed discharges or existing discharges, or, as here, prescribe general WDRs for categories of discharges which meet certain criteria. (Water Code § 13263(a), (i).) Third, the Regional Board may waive the requirements of sections 13260(a) and (c), 13263(a), and 13264(a) and issue a conditioned waiver for discharges of waste. (Water Code § 13269(a)(1).) Through these mechanisms, all discharges of waste to waters of the state should be regulated.

Porter-Cologne makes clear that dischargers must comply with one of the three regulatory mechanisms. "No discharge of waste into waters of the state, whether or not the discharge is made pursuant to [WDRs], shall create a vested right to continue the discharge. All discharges of waste into waters of the state are *privileges, not rights*." (Water Code § 13263(g) [emphasis added]; *see* 23

Cal. Code Regs. § 2208(a).) In fact, Porter-Cologne explicitly prohibits the discharge of waste prior to filing the report required by section 13260, issuance of WDRs pursuant to section 13263, or issuance of a conditional waiver pursuant to section 13269. (Water Code § 13264(a).) As required under Porter-Cologne, if the General Permit is not approved, then dischargers would be required to comply with a different regulatory mechanism—unregulated discharges from vineyard properties are not an option.

3-8 cont.

Under the no project alternative, it is a predictable consequence, and required by law, that either dischargers file reports pursuant to section 13260, or the Regional Board issue different WDRs (individual or general) or a conditional waiver of WDRs. Implementation of the Napa River and Sonoma Creek TMDLs is not optional. The non-approval of one regulatory mechanism does not limit the Regional Board's authority to pursue alternative routes to control waste discharges from vineyard properties. The EIR must be revised to supplement the no project alternative analysis to comply with the requirements of CEQA and Porter-Cologne.

VIII. <u>Conclusion.</u>

In closing, Baykeeper requests that the EIR be revised and recirculated to provide an appropriate level of public review in accordance with these comments. The General Permit is an important step to reduce sediment discharges and improve the water quality of the Napa River and Sonoma Creek watersheds; however, the General Permit regulates more than just sediment, and these additional constituents—pesticides and nutrients—must be fully discussed, and their environmental impacts fully analyzed and mitigated, in the EIR. Additionally, the alternatives analysis in the EIR must be revised to include a reasonable range of alternatives and to redefine the no project alternative. As written the EIR is fundamentally flawed and fails to fulfill the basic purposes of CEQA. This is the Regional Board's chance to protect the Napa River and Sonoma Creek from all constituents that pose a threat to water quality. Please take this opportunity and revise the EIR to meaningfully analyze and mitigate the impacts of pesticide discharges, and provide for the protection of these threatened watersheds to the fullest extent of the Regional Board's authority.

3-9

Very truly yours,

Nicole C. Sasaki
Associate Attorney
San Francisco Baykeeper

Attachments.

Additional attachments found in this comment letter are listed below, and can be reviewed at the following link:

http://www.swrcb.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/vineyard/Comment_Letters_2016/CommentLetter%20No.%203%20BayKeeper.pdf

Attachment 1:	Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands
Attachment 2:	Endangered Species Act Section 7 Consultation Biological Opinion: Environmental Protection Agency Registration of Pesticides Containing Chlorpyrifos, Diazinon, and Malathion
Attachment 3:	Endangered Species Act Section 7 Consultation Final Biological Opinion: Environmental Protection Agency Registration of Pesticides Oryzalin, Pendimethalin, Trifluralin
Attachment 4:	Identifying the Causes of Feminization of Chinook Salmon in the Sacramento and San Joaquin River System
Attachment 5:	Site-Specific Profiles of Estrogenic Activity in Agricultural Areas of California's Inland Waters
Attachment 6:	Identifying Current Use Pesticides (CUP) to Include in Future RMP Monitoring
Attachment 7:	2014 Annual Pesticide Use Report Indexed by Chemical: Napa County
Attachment 8:	National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities

UNITED WINEGROWERS for Sonoma County

VIA EMAIL: MNapolitano@WATERBOARDS.CA.GOV

Letter 4

September 13, 2016

Mike Napolitano
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, California 94612

RE: General Waste Discharge Requirements (General Permit) for Vineyard Properties

Dear Mr. Napolitano:

Having reviewed the draft Environmental Impact Report (EIR), we have several concerns and believe a better alternative General Permit is achievable that works for vineyards in the Napa River and Sonoma Creek watersheds. We are in agreement with the General Permit's goal of protecting water resources and keeping those clean now and for future generations. 4-1

We find that the draft EIR:

- **Applies an inconsistent approach to staff's recommended Farm Plan.**
- **Overstates the miles of roads and impacts.**
- **Ignores important work previously done in these two watersheds.**

Inconsistent approach

One of the Project Objectives (Sonoma TMDL 2008, p. 5) is to "Avoid imposing regulatory requirements that are more stringent than necessary to meet numeric targets and attain water quality standards."

From the Draft EIR (p.281): "Based on extensive field surveys and review of farm water quality protection plans for more than 100 Vineyard Properties including more than 10,000 acres of planted grapes, Water Board staff conclude that it is likely that almost all Vineyard Properties within the project area already have implemented effective BMPs, as needed to achieve the performance standards for vineyard surface erosion and discharge of nutrients and pesticides." 4-2

As stated in the draft EIR (p. 276), already up to 40% of the vineyards in these two watersheds have a completed Farm Plan. "Therefore, we expect that many vineyard properties that have previously completed and implemented a farm plan, already are achieving the performance standards for discharge that would be required by the General Permit."

Furthermore, the draft EIR concludes, from Appendix B (page 392),"5. In estimating the relative impacts, we did not consider actions to achieve the vineyard surface erosion performance standard because most sites already have achieved this standard, and also because at sites where additional BMPs may be needed (i.e. cover crops, composted mulch, vegetated buffer strips, etc.), potential impacts in all cases would be less than significant."

With the broad voluntary implementation of the application of the code of sustainable wine growing processes among wine grape growers in the Napa River and Sonoma Creek watershed, actually the number of vineyard properties already practicing BMPs is well beyond 40%. With the progress also being made by Sonoma County's Winegrape Commission toward their goal of 100% Sonoma Sustainable, broad scale application of the BMPs will be completed prior to the future deadlines required in the General Permit.

4-2 cont.

Given the progress demonstrated by vineyards in these two watersheds and the stated objective to minimize regulatory requirements, the approach taken is for each vineyard over 5 acres and downstream of a municipal reservoir simply to prepare a Farm Plan. Instead, much of the draft EIR focuses on construction activities. It notes "short- term erosional adjustments could occur at some BMP construction sites, which could cause eroded sediment [that] could be deposited in stream channels." "Disturbance to existing grades and vegetation shall be limited to the actual site of the conservation project and necessary access routes." It wanders into the use of, and impacts from, heavy equipment as well as proposing to fix problems that predate baseline conditions such as forest conversions.

Overstated numbers

The proposed General Permit overstates the mileage of hillslope vineyard roads. Previous documents identified 915 miles of unpaved roads in the Napa River watershed and 519 miles of unpaved roads in the Sonoma Creek watershed (Napa River Sediment TMDL 2009 and Sonoma Creek Sediment TMDL 2008) without identifying which were public or private, or would fall within the General Permit's 'property access roads to vineyard properties.'

"The General Permit requires actions to control sediment discharges and storm runoff increases from farms and roads, toward the goal of achieving 50 percent reductions in sediment delivery to channels within vineyard properties in the Napa River and Sonoma Creek watersheds as called for in the sediment TMDLs (Water Board, 2008b and 2009b)….total sediment savings from the General Permit would be ≥ 33,700 metric tons per year" (DEIR, pp. 260-261).

4-3

This number is based on 109,000 acres of existing vineyard properties and 16,000 acres of future vineyard properties. Of the sediment sources, valley floor vineyards make up 2/3rds of the total 54,000 planted vineyard acreage and are credited with 10% of the savings: 3,000 metric tons per year. Hillslope vineyard properties (>5% slope) are credited with 6,700 metric tons per year. It is unclear why the calculation uses only vineyard acreage for the valley floor but uses total vineyard property acreage for hillslope sediment savings.

When it comes to roads (representing 71% of the General Permit's sediment savings), all vineyard properties are treated alike. Average road density is 4.5 miles per square mile, which includes public roads. If 90% are unpaved, it yields 690 miles of unpaved roads, though in fact, the sediment savings shown are based on a calculation that uses 791 miles of unpaved roads (DEIR pp. 248-249).

The draft EIR makes a flawed connection, creating a new estimate for miles of unpaved roads, then assigning all of those unpaved road miles to hillslope vineyard properties.

Sediment savings from roads are a major component of the General Permit. Yet, the draft EIR states "Of the more than one hundred vineyard properties where Water Board staff have conducted site inspections and reviewed vineyard property farm plans that apply to the whole property including all unpaved roads, problem road segments were identified at only two properties, and at both sites, it was possible to substantially reduce road-related sediment delivery to channels by addressing diversion potential at crossings, minimizing hydrologic connectivity, and limiting vehicle traffic during the wet season. For these reasons, we conclude that decommissioning problem road segments and/or constructing new storm-proofed road segments will be a very uncommon compliance action" (DEIR p.196).

The draft EIR (p.159) concludes construction involving roads on hillslope vineyard properties "constitutes the largest linear set of construction actions to be undertaken to comply with the General Permit in the Project area. Up to 800 miles of unpaved roads occur on hillslope Vineyard Properties that could be enrolled in the General Permit." But, there are not 800 miles of unpaved roads on hillslope Vineyard Properties. 4-3 cont.

"BMPs that may be employed on unpaved roads, by design, will disperse storm runoff that is concentrated by the roads, and as a result, also will enhance infiltration of runoff into soils by reducing runoff velocity, volume, and peak at a given location, and/or by increasing the hillslope length over which the runoff travels, and therefore, contributing to local increases in groundwater recharge. These beneficial effects on groundwater recharge would be very large in scale, because up to 200 miles (see Discussion of Impact 8.4a) of unpaved roads could be treated to disperse runoff at hillslope vineyard properties that would be enrolled in the General Permit" (DEIR p. 258). The number of 200 miles is 25% of the 800 number to fix the half of 50% of roads now hydrologically connected but again not solely hillslope vineyard properties.

Key numbers in the draft EIR illustrate the limited role that vineyards actually play in contributing sediment in these two watersheds. For example:

- Total vineyard acreage enrolled is 54,000 acres of the 380,000 acres in the Project Area. Planted acreage is 59,000. The difference of 5,000 acres is in the Napa River watershed which has 45,000 acres of planted vineyards – 28,400 acres less than 5% slope and 16,800 acres over 5% slope but downstream of Municipal Reservoirs there are 26,800 acres less than 5% slope (2/3rds) and 13,100 acres over 5% slope or 40,000 acres total. See Table B-1. A similar distribution (over/under 5% slope) is assumed for the Sonoma Creek watershed, with its total of 14,000 planted vineyard acreage. In both watersheds, less than 18,000 acres of the 380,000 are hillslope vineyards (4.7%).

- The draft EIR's Table 10-1 (page 283) is titled 'Napa River Watershed,' however, the Project Area used (592 square miles) includes both the Napa River and Sonoma Creek watersheds. The footnote in Table 10-1 lists different acreage numbers for hillslope and downstream vineyards than shown in the table and should be corrected.

- It would be helpful to have in one place the numbers for the combined Project Area and have those detailed for each watershed. In some places the Vineyard Property acreage is 162,000 (Vineyard Properties constitute about 162,000 acres, or 40 percent of the total land area in the Napa River and Sonoma Creek watersheds page 331 of 487) or 133,000, in others 131,500, and elsewhere 109,000. Also clarity is needed whether or not the tidal areas are included or excluded. It is noted that fish are unable to use the Napa River watershed downstream of Soda Creek for spawning which reduces the Project Area from 380,000 to 250,500 acres (drainage area of Napa River at Soda Creek plus Sonoma Creek's) (DEIR p. 249).

4-3 cont.

Ignoring important previous work done in these watersheds

Credit is given to the role Municipal Reservoirs play as keepers of sediment. Additionally "There are 28 dams in the Napa River watershed with individual water storage capacities greater than 28 acre-feet5 (3.4x104 m3) (DSOD 2000). The total storage capacity of these 28 dams is 43,800 acre-feet (5.4x107 m3), which is approximately 30 percent of the average annual runoff of 148,000 acre-feet (1.82x108 m3) (as measured at the US Geological Survey [USGS] Napa River gage at Napa). Seventy-one percent of the total reservoir storage in the watershed is in Conn Creek Reservoir (Lake Hennessey), which was built in 1948. Other significant dams include Rector Creek, Bell Canyon, and Milliken dams, which along with Conn Creek Dam provide over 91 percent of the total reservoir storage in the watershed. All of these dams are located on the tributary streams along the eastern side of the watershed, and effectively block every major east side tributary between St. Helena and Napa, except Soda Creek."

4-4

Earlier work in these watersheds shows that "based upon the literature for other reservoirs, plus the estimates cited above, nearly 100% of the coarse load and perhaps 10-60% of the fine load is expected to be trapped in the numerous small stock ponds and irrigation ponds distributed throughout the watershed that are directly connected to the drainage network."

From the Napa River Sediment TMDL and Habitat Enhancement Plan September, 2009, the first page begins with "ACKNOWLEDGEMENTS Martin Trso, working as a contractor to the University of California at Berkeley (UCB), Department of Earth and Planetary Sciences, was the lead investigator for the sediment source analysis presented herein (Chapter 3)." In the draft EIR, no reference is included, no credit given, no mention made to any of the lead investigator's work. As requested in our earlier scoping comments dated August 14, 2014, "It too would be a benefit to the preparers of the EIR and the public to be able to access all the background materials and studies done by Trso and others for the TMDL reports." The draft EIR includes reference to a new work, Napolitano, 2016 on page 195 in footnote 40, but that one is not then cited in the list of References on pages 204-5. Access to it and all references would be helpful.

Conclusion

For the record, once again we cite an earlier TMDL: "For the considerable potential benefits to the public in terms of ecosystem functions, aesthetics, recreation, and water quality, we conclude that at least 75 percent of the cost of these actions will be paid for with public funds." Instead of implementing a whole new, more costly approach, let's build on what has worked – like the Farm Plan – that has shown positive results, at a fraction of the costs.

4-5

On behalf of the Board of Directors of United Winegrowers for Sonoma County,

Sincerely,

Bob Anderson, Executive Director
United Winegrowers for Sonoma County
P.O. Box 382
Santa Rosa, CA 95402

Phone: 707-433-7319

CALIFORNIA FARM BUREAU FEDERATION

OFFICE OF THE GENERAL COUNSEL

2300 RIVER PLAZA DRIVE, SACRAMENTO, CA 95833-3293 · PHONE (916) 561-5665 · FAX (916) 561-5691

Via Email

mnapolitano@waterboards.ca.gov

September 14, 2016

Letter 5

Mr. Mike Napolitano
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612-1482

Re: California Environmental Quality Act Comments on the Draft Environmental Impact Report for the General Waste Discharge Requirements for Vineyard Discharges in the Napa River and Sonoma Creek Watersheds

Dear Mr. Napolitano:

The California Farm Bureau Federation ("Farm Bureau") is a non-governmental, non-profit, voluntary membership California corporation whose purpose is to protect and promote agricultural interests throughout the state of California and to find solutions to the problems of the farm, the farm home, and the rural community. Farm Bureau is California's largest farm organization, comprised of 53 county Farm Bureaus currently representing approximately 53,000 agricultural, associate, and collegiate members in 56 counties. Farm Bureau strives to protect and improve the ability of farmers and ranchers engaged in production agriculture to provide a reliable supply of food and fiber through responsible stewardship of California's resources.

5-1

Farm Bureau, on behalf of the Napa County Farm Bureau and the Sonoma County Farm Bureau, appreciates the opportunity to provide comments on the San Francisco Bay Regional Water Quality Control Board's ("Regional Board") draft Environmental Impact Report ("DEIR") to assess the draft General Waste Discharge Requirements for Vineyard Discharges in the Napa River and Sonoma Creek Watersheds ("Vineyard WDRs"). Farm Bureau offers the following concerns and comments regarding the scope and content of the environmental analysis and environmental documentation for the draft Vineyard WDRs.

Agricultural Resources Must Be Considered During Environmental Review

5-2

Agricultural resources are an important feature of the existing environment of the state, and are protected under federal policies, such as the Farmland Protection Policy Act and National Environmental Policy Act ("NEPA"), state policies, and the California

Environmental Quality Act ("CEQA"). Agriculture is the number one industry in California, which is the leading agricultural state in the nation.[1] Agriculture is one of the foundations of this state's prosperity, providing employment for one in 10 Californians and a variety and quantity of food products that both feed the nation and provide a significant source of exports.[2] In 1889, the state's 14,000 farmers irrigated approximately one million acres of farmland between Stockton and Bakersfield. By 1981, the number of acres in agricultural production had risen to 9.7 million.[3] More recently, the amount of agricultural land in the state has declined. From 1982 to 1992, more than a million acres of farmland were lost to other uses. Between 1994 and 1996, another 65,827 acres of irrigated farmland were lost, and this trend is expected to continue at a rate of 39,000 acres lost per year.[4]

In order to preserve agriculture and ensure a healthy farming industry, the Legislature has declared that "a sound natural resource base of soils, water, and air" must be sustained, conserved, and maintained.[5] Prior to negatively impacting agricultural lands, decision makers must consider the impacts to the agricultural industry, the state as a whole, and "the residents of this state, each of whom is directly and indirectly affected by California agriculture."[6]

5-2 cont.

One of the major principles of the state's environmental and agricultural policy is to sustain the long-term productivity of the state's agriculture by conserving and protecting the soil, water, and air that are agriculture's basic resources.[7] Overly expansive and duplicative regulations may conflict with this policy by leading to the conversion of agricultural lands to other uses. This conversion would add to the existing statewide conversion of substantial amounts of agricultural lands to other uses, and may conflict with adopted plans of many local governments, including cities and counties, and existing habitat conservation plans or natural community conservation plans. Such conversion will have a significant impact on the region's environment, including the agricultural environment.[8]

---

[1] Food & Agr. Code, § 802(a).
[2] CALFED Final Programmatic EIS/EIR, July 2000, pg. 7.1-1.
[3] Littleworth & Garner, California Water II (Solano Press Books 2007) p. 8.
[4] See CA Dept. of Conservation Farmland Mapping and Monitoring Program, available at <http://www.conservation.ca.gov/dlrp/fmmp/trends/Pages/stat_summaries.aspx>. This trend does not take into consideration acreage lost due to periods of drought.
[5] Food & Agr. Code, § 802(g).
[6] Food & Agr. Code, § 803.
[7] Food & Agr. Code, § 821(c).
[8] In order to recognize the importance of agriculture and the effect of overly expansive and duplicative regulations on remaining agricultural lands, Farm Bureau requests the Regional Board add appropriate statements within the Environmental Impact Report to capture this fact. Possible statements include:
"The Regional Board recognizes the importance of sustaining farmland resources and the potential burden of duplicative regulations. Every effort will be made to recognize existing local regulations and avoid rules which could overly burden farmers and ranchers."

CEQA requires analysis of significant environmental impacts and irreversible changes resulting from proposed projects.[9] These include unavoidable impacts; direct, indirect, and cumulative effects; irreversible and irretrievable commitment of resources; relationships between short-term uses and long-term productivity; and growth-inducing impacts to the environment. Pursuant to CEQA, the physical environment includes agricultural lands and resources. Given the national and statewide importance of agriculture and the legal requirements of environmental review, Farm Bureau urges the Regional Board to properly assess all direct and indirect effects on the agricultural environment resulting from the proposed project in its environmental analysis.[10]

5-2 cont.

Regulations of Waste Discharges From Irrigated Lands Must Be Feasible

In formulating regulations of waste discharges from irrigated lands, such as waste discharge requirements, the Regional Board should seek to develop the most efficient and feasible program that accomplishes water quality goals and the stated objective of the Vineyard WDRs.[11] Given the diverse array of geography, topography, local conditions, and agricultural commodities grown in Napa and Sonoma counties, water management and monitoring programs must be flexible and allow for necessary adaptations, both for localized areas and throughout the region. In addition to being flexible, future regulations and project alternatives must be feasible such that they are "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."[12] All components of feasibility must be fully analyzed within the Regional Board's environmental analysis of the regulations and its impacts to agriculture.

5-3

Scope of Regulations of Waste Discharges From Irrigated Lands

The true goal of the Vineyard WDRs is to improve water quality over time. The State Water Code and the Regional Board' Basin Plan provide authority for the Regional Board to impose regulations on dischargers to improve water quality. Farmers are equally concerned about water quality and the environment. However, there is no need for the Regional Board to impose arbitrary restrictions on agriculture so long as farmers take necessary steps to demonstrate water quality improvement over a scientifically feasible timeline with intermediate milestones.[13] In order to reach this goal, the primary focus of maintaining and improving water quality over time should remain. To aid in

5-4

[9] Pursuant to CEQA, "[s]ignificant effect on the environment" means, "a substantial, or potentially substantial, adverse change in the environment." (Pub. Resources Code, § 21068.) The CEQA Guidelines make it clear the "environment" in question encompasses, "any physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise and objects of historic or aesthetic significance." (Pub. Resources Code, § 21060.5.)

[10] Any and all adverse environmental effects on agricultural resources resulting from the project, as well as cumulative impacts that will occur over time, must be fully assessed and disclosed under CEQA, as well as avoided or mitigated as required by CEQA.

[11] Pub. Resources Code, § 21061.1.

[12] *Ibid.*

[13] The agricultural community has been taking necessary steps to demonstrate water quality improvements.

reaching this goal, the Regional Board should evaluate water quality data and sediment data collected and use such data to implement and adjust management practice implementation. Further, problem areas should be identified by reviewing the respective TMDL studies, in particular the Limiting Factor Analysis and Sediment Source Analysis reports, of both the Napa River and the Sonoma Creek watersheds. The process of designing and adopting a new agricultural discharge program will take time and further collaboration between the Regional Board and agriculture will be necessary to develop a workable long term solution.

5-4 cont.

Scope of Vineyard WDRs Should Be Focused on the Problem Areas Rather Than Applicable to all Properties Regardless of Water Quality Impacts

As currently drafted, the Road Performance Standards for the Vineyard WDRs cover the entire vineyard property, not just the vineyard facility. (WDR, Provision B, p. 11.) It also covers all roads and does not prioritize the areas with high- and moderate-high-priority erosion sites, distance from surface waters, or parcel size or planted acres. As proposed, the Road Performance Standards are overly extensive and will be extremely expensive to implement. Given the concern about the financial hardship of meeting such an extensive regulation, the DEIR should provide the estimated cost per mile to assess and improve the road system to reduce road-related sediment delivery, as well as an analysis of the potential to achieve the target sediment reductions. Further, in order to adequately capture applicable costs and associated impacts versus benefits, alternatives for the Road Performance Standards must be analyzed that look at 1) the entire vineyard property, 2) the vineyard facility, and 3) areas identified as high priority erosion areas. Since the DEIR does not contain these analyses, the DEIR should be revised and recirculated.

5-4b

The DEIR is Not Based on Substantial Evidence but Rather Mere Speculation

Prior to approving a project, *decision-makers* must be provided with the fullest extent of information available upon which to *base* their *decision*. This determination is based upon whether it can be fairly argued, given the substantial evidence in light of the whole record, that a project may or may not have a significant effect on the environment. "Argument, speculation, unsubstantiated opinion or narrative, or evidence…shall not constitute substantial evidence." (Cal. Code Regs., tit. 14, § 15064(f)(5).)

5-5

The DEIR is not based on substantial evidence but rather mere speculation and uncertainty. For example, the DEIR concludes:

> "The General Permit will not result in any amount of land permanently converted or committed to urban or other nonagricultural uses." (DEIR, p. 4.)

> "Even if the grower succumbs to economic pressure and is forced to sell their land or be forced out of business, the most likely possibility is that the land would be sold to another grower, resulting in a similar environmental impact." (DEIR, p. 112)
>
> "It is therefore highly unlikely that the General Permit would render a vineyard operation economically unviable. In the unique circumstance where the cost of BMP installation may be too great or the loss of production of displaced planted areas would make the operation unprofitable, neither scenario would permanently or irretrievably convert the affected Farmland to non-agricultural use. The land would still be available for agricultural uses and therefore implementation of BMPs would be considered a less than significant impact." (DEIR, p. 112.)

As evidenced in the small selection of examples provided above, some of the DEIR's conclusions are based upon speculation and uncertainty rather than substantial evidence. "Like an EIR, an initial study or negative declaration 'must focus on impacts to the existing environment, not hypothetical situations.' (*County of Amador v. El Dorado County Water Agency, supra,* 76 Cal.App.4th at p. 955, 91 Cal.Rptr.2d 66.)" (*Communities For A Better Environment v. South Coast Air Quality Management Dist.*, 48 Cal.4th 310, 322.) By speculating on what could happen, rather than on actualities, an improper environmental baseline and resulting conclusions have been drawn. (*Ibid*., ["By comparing the proposed project to what *could* happen, rather than to what was actually happening, the District set the baseline not according to 'established levels of a particular use,' but by 'merely hypothetical conditions allowable' under the permits. (*San Joaquin Raptor Rescue Center v. County of Merced, supra,* 149 Cal.App.4th at p. 658, 57 Cal.Rptr.3d 663.)," emphasis original].) Mere statements of uncertainty or deflections to avoid a proper analysis regarding impacts to agricultural resources or economic impacts do not meet CEQA burdens. Therefore, the DEIR must be revised so that all conclusions are supported by substantial evidence rather than speculation. 5-5 cont.

The DEIR Improperly Shifts the Burden of Proof and Determination of Significance to the Public

When conducting environmental review pursuant to CEQA, the burden of proof is on the lead agency to show that the project won't have an impact on the environment. (Cal. Code Regs., tit. 14, § 15064.) Under CEQA, if a project clearly will have an impact on the environment, its proponents, here the Regional Board, must identify those impacts and propose mitigations. (Cal. Code Regs., tit. 14, § 15002.) The burden of proof is *not* on the public to show that an environmental impact may occur. Further, the public does not bear the burden of determining which portions of a project will have a significant impact or effect on the environment. Rather, that is the fundamental duty of the lead agency. (Cal. Code Regs., tit. 14, § 15064.) 5-6

The determination of whether a project may have a significant effect on the environment is a critical step in the CEQA process, and one that requires professional knowledge and judgment, as described in California Code of Regulations, title 14, section 15064. The determination should be based on information and evidence in the record and, to the extent feasible, on scientific and factual data. (*Ibid*.) This determination is made prior to and separate from the development of mitigation measures for the project.

The CEQA Guidelines set forth the following definition for significant effect:

> "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant."

(Cal. Code Regs., tit. 14, § 15382.) According to Public Resources Code section 21083 and CEQA Guidelines section 15065, if any of the following impacts would result from a proposed project, the project is considered to have a significant effect on the environment:

5-6 cont.

> The project has the potential to substantially degrade the quality of the environment…
>
> The project has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.
>
> The project has possible environmental effects which are individually limited but cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects and the effects of reasonably foreseeable probable future projects.
>
> The environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly.

In determining whether a project will have a significant environmental effect, the lead agency must consider the "whole of the action," which includes all discretionary approvals by governmental agencies, ministerial actions as well as discretionary actions, and all constituent parts of a project. (Cal. Code Regs., tit. 14, §§ 15003(h), 15378.)

As currently drafted, the DEIR improperly shifts the burden of proof and determination of significant impacts or effects to the public. For example, the conclusion that the Vineyard WDRs will not permanently convert agricultural lands to other uses is based

solely on the DEIR's speculative conclusion that any farm operations that are forced out of operation due to the costs of complying with the Vineyard WDRs will not result in the conversion of agricultural lands because the land would be sold to other growers (and would never be sold to a developer or someone who would take the land out of agricultural production). (See DEIR, p. 112.) This conclusion is very speculative and is not supported by any evidence. Additionally, the DEIR states that CEQA scoping comments did not provide additional specific information regarding how the costs of compliance may be high, thus prompting the Regional Board to conclude that "compliance with the General Permit at Vineyard Properties would have a less than significant impact." (DEIR, p. 111.) It is the Regional Board's burden, rather than the public's burden to investigate and determine if there is a possible impact. Thus, the public did not have the burden to produce all evidence regarding potential high costs. "CEQA places the burden of environmental investigation on government rather than the public," and if "the local agency has failed to study an area of possible environmental impact, a fair argument may be based on the limited facts in the record." (*Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 311.) The agency may not "hide behind its own failure to gather relevant data." (*Ibid*.)

5-6 cont.

Therefore, the DEIR needs to be revised because the current conclusions that the costs to comply with the General Permit will not be high, or that no land will be taken out of agricultural production are speculative and incorrectly and improperly shift the burden of identifying significant environmental impacts from the lead agency to the public in direct violation of CEQA. (Cal. Code Regs., tit. 14, § 15064.)

Specific Environmental Concerns That Are Not Properly Analyzed in the Regional Board's Environmental Impact Report

Upon review of the DEIR, Farm Bureau has identified several specific concerns relating to agricultural resources that are not fully or properly analyzed in the environmental review, as follows:[14]

5-7

1. **Accurate and Complete Analysis of All Impacts**: The impact analysis must not be limited to direct impacts from the regulations. The analysis should consider all direct, indirect, and reasonably foreseeable cumulative impacts.

2. **A Full Range of Alternatives Must be Examined**: The Regional Board shall identify and rigorously examine all reasonable alternatives for the project.[15] The range of alternatives must be feasible and must avoid or substantially lessen the project's significant environmental effects[16] "*even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly*."[17] A feasible alternative is one that is "capable of being accomplished in a

[14] Note: this list is not exhaustive.
[15] 40 C.F.R. §§ 1500.2 subd. (e), 1501.2 subd. (c), 1502.1, 1502.14 subd. (a), 1502.15 subd. (d).
[16] Pub. Resources Code, §§ 21002, 21001.1(a), 21100(b)(4), 21150.
[17] Cal. Code Regs., tit. 14, § 15126.6, subd. (b), *emphasis added*.

successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."[18] Additional alternatives that were not but should be analyzed within the DEIR include:

(a) The DEIR should fully consider the project as proposed in the draft 2012 Conditional Waiver (Conditional Waiver of Waste Discharge Requirements For Discharges From Vineyard Properties in the Napa River and Sonoma Creek Watersheds, Tentative Order 2012-XXX). The draft 2012 Conditional Waiver covered the following vineyards:

i) Contains a **Vineyard Facility** with a **Slope** less than 5 percent located on one or more parcels totaling 40 acres or more, where 5 or more acres are a planted vineyard; or

ii) Contains a **Vineyard Facility** with a **Slope** of 5 percent or greater located on one or more parcels totaling 20 acres or more, where 5 or more acres are a planted vineyard; or

iii) Is identified by Water Board staff as discharging or proposing to discharge waste that could affect water quality and the Water Board staff finds that regulation of such vineyard through this Conditional Waiver will result in compliance with applicable water quality standards, such that regulation through individual or general WDRs is not necessary.[19]

Given that the Technical Advisory Committee concluded that the eligibility criteria "captures an estimated 85 percent of vineyard parcels and cultivated acres in the Napa River and Sonoma Creek watersheds and takes into consideration parcel size, vineyard size, slope, geology, and soil erosion potential," the 2012 Conditional Waiver eligibility criteria is a viable alternative that captures the goals of the Vineyard WDRs.[20] Thus, the DEIR should fully consider and analyze the eligibility criteria from the 2012 Conditional Waiver as an alternative.

5-7 cont.

(b) Mean Annual Sediment Delivery (tons/yr) by sediment source should be estimated for each alternative in a similar manner as shown in Tables 3 and 4 of the Initial Study. (See Initial Study, p. 18.)

3. **All Impacts to Agricultural Resources Must be Fully Mitigated:** All feasible mitigation measures that are analyzed in the environmental review documents need to address the impacts to agricultural resources, must be fully described, and must mitigate for the impacts. A project of this magnitude has the potential to negatively impact agricultural lands, leading to the conversion of significant amounts of

5-8

[18] *See* Pub. Resources Code, § 21061.1; Cal. Code Regs., tit. 14, § 15364.
[19] Conditional Waiver of Waste Discharge Requirements For Discharges From Vineyard Properties in the Napa River and Sonoma Creek Watersheds, Tentative Order 2012-XXX, p. 2.
[20] *See id*. p. 6.

agricultural land to non-agricultural use.[21] Rather than including mitigation measures, the DEIR concludes that the "General Permit will not result in any amount of land permanently converted or committed to urban or other nonagricultural uses." (DEIR, p. 4.) This statement is speculative and is not supported by substantial evidence. For example, land along farm roads may need to be utilized in a different manner (non-farming manner) in order to prevent sediment/erosion and stormwater runoff, establish stream setbacks, and/or be taken out of production in order to comply with the Vineyard WDRs.

5-8 cont.

4. **Social and Economic Impacts Must be Analyzed Under CEQA:**[22] Although impacts that are solely economic in nature do not constitute "significant effects on the environment," economic or social impacts that will or have the potential to cause a physical change should be considered.[23] The term "significant effect on the environment" is defined in section 21068 of CEQA as "a substantial or potentially substantial adverse change in the environment."[24] This focus on physical changes is further reinforced by Sections 21100 and 21151.[25] Despite the implication of these sections, CEQA does not focus exclusively on physical changes, and it is not exclusively physical in concern.[26] Thus, in certain situations such as the adoption of an expansive regulatory irrigated lands discharge program, economic and social effects of the project must be used to determine the significant effects on the environment.[27] A cumulative effect of environmental regulations can be the loss of some farmland either by regulatory restrictions or by the compliance cost burden casualty. The loss of farmland is unquestionably an environmental impact,

5-9

[21] The Regional Board should consult with applicable county and local governments to assess local agricultural mitigation measures. For example, San Joaquin County and Yolo County have adopted ordinances to preserve agricultural land through the use of agricultural easements for agricultural land lost to development. San Joaquin County requires a 1:1 mitigation ratio for any "General Plan amendment that changes the designation of any land from an agricultural to a nonagricultural use" or any "Zoning Reclassification that changes the permitted use from agriculture to a nonagricultural use, regardless of the General Plan designation." (*San Joaquin County General Plan*, Section 9-1080.3(a)-(c).) Yolo County requires a 1:1 mitigation ratio for any "conversion or change from agricultural use to a predominantly non-agricultural use…." (*Yolo County General Plan*, Section 8-2.2416(3).)

[22] CEQA requires analysis of a proposed project's potential impacts to agriculture, but social and economic changes are not considered environmental impacts in and of themselves under CEQA, although they may be used to determine whether a physical change is significant or not. CEQA also permits discussion of social and economic changes that would result from a change in the physical environment and could in turn lead to additional changes in the physical environment. (Cal. Code Regs., tit. 14, § 15064 subd. (f)).

[23] Cal. Code Regs., tit. 14, §§ 15064(e), 15131.

[24] Pub. Resources Code, § 21068.

[25] Discussion following Cal. Code Regs., tit. 14, § 15131.

[26] *Ibid.*

[27] *Citizens Assn. for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal. App. 3d 151, 170, ["The lead agency shall consider the secondary or indirect environmental consequences of economic and social changes. . . economic or social change may be used to determine that a physical change shall be regarded as a significant effect of the environment. Where a physical change is caused by economic or social effects of a project, the physical change may be regarded as a significant effect in the same manner as any other physical change resulting from the project. Alternatively, economic and social effects of a physical change may be used to determine that the physical change is a significant effect on the environment."].

although its magnitude may be hard to predict.[28] The DEIR should, in the very least, estimate the percentage of the potentially productive land barred from cultivation and the dollar value of the vineyard owners' or operators' cost for the WDRs compliance. Such figures, when added to those from other regulations, will give the public a proper scope of potential and cumulative impacts and an initial estimate of the amount of farmland that would be lost.

Anticipated program implementation costs to the agricultural community include, but are not limited to, increases in potential fees, management practice implementation, monitoring costs, report preparation, and cost for education, preparation of Farm Water Quality Plans[29], road improvements[30] and erosion control, as well as other costs. Given that the impacts of water quality regulations frequently take years to materialize, the DEIR should be revised to analyze the economic costs and impacts within a dynamic framework taking into account the projected changes in the economic situation *over time*.

5-9 cont.

5. **Impact of Reduced Sediment in San Pablo Bay Should be Addressed**: As seen from the nearly 40% decrease in suspended sediment in San Pablo Bay that began in 1999, reduced sediment results in the increased clarity of water, triggering excessive phytoplankton growth, which in turn can lead to fish kills due to deprivation of dissolved oxygen. The decrease in sediment will also hinder natural maintenance and restoration of the bayside wetlands. This is particularly troublesome in view of the predicted sea level rise.[31] Although the reduced sediment input from Napa River and Sonoma Creek may have little overall impact on San Francisco Bay as a whole, it could have a locally significant impact in the northern half of San Pablo Bay. The potential impact of the reduced sediment should, therefore, be addressed within the DEIR and its alternatives analysis.

5-10

6. **The Definition of Vineyard Property is Excessive**: The Vineyard WDRs define "vineyard property" as the vineyard facility and all adjacent owned parcels and roads. Such an expansive definition appears to be excessive for the goals the Vineyard WDRs are trying to achieve, and is one of the factors that could lead to high costs resulting in the conversion agricultural lands to non-agricultural lands.

5-11

[28] Section 3.3 of the DEIR discusses these cost concerns obliquely and reiterates that economics cannot be permitted to bear as heavily on CEQA determinations as physical environmental effects. However, in the agricultural industry concerns about economics are often inextricably linked to concerns about being unable to afford to maintain the farmland, leading to its ultimate conversion to non-farmland, thus warranting an extensive environmental review analysis.

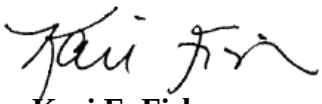
[29] The Vineyard WDRs would require dischargers to prepare a Farm Water Quality Protection Plan for (at a minimum) all vineyard blocks, lanes, and avenues. This document has many components and requirements, which will be highly time and cost intensive for farmers to prepare.

[30] The Vineyard WDRs mandate making significant changes to the current road situation in the project region; the current roads running through these vineyards are largely "farm roads," which are unpaved. To alter these roads would be very time and cost intensive to the vineyard owners.

[31] David H. Schoellhamer, USGS, "Suspended Sediment in the Bay: Past a Tipping Point," in "The Pulse of the Estuary 2009" (Jay Davis, Editor), San Francisco Estuary Institute, Oakland, CA., 2009.

Thank you for the opportunity to provide our comments. We look forward to further involvement and discussion with the Regional Board on the development of regulations concerning waste discharges from vineyard properties in the Napa River and Sonoma Creek watersheds. 5-12

Sincerely,



Kari E. Fisher
Associate Counsel

KEF/pkh

Letter
6

MEMO

TO: Mike Napolitano
San Francisco Bay Water Quality Board
1515 Clay Street, 14th Floor
Oakland, CA 94612

FROM: Joy Eldredge, Water General Manager

CC: Eric Robinson, KMTG
Mike Parness, City Manager
Michael Barrett, City Attorney
Jacques LaRochelle, Public Works Director
Phil Brun, Deputy Public Works Director, Operations
Erin Kebbas, Water Quality Manager
Michael Hether, Senior Engineer

DATE: September 14, 2016

SUBJECT: Comments on Draft EIR for General Waste Discharge Requirements for Vineyard Properties located in the Napa River and Sonoma Creek Watersheds

---

The City of Napa (City) has reviewed the Draft Environmental Impact Report (EIR) for the proposed General Waste Discharge Requirements for Vineyard Properties located in the Napa River and Sonoma Creek Watersheds (General Permit). The City appreciates the opportunity to review and comment on the EIR and to cooperate with the San Francisco Bay Regional Water Quality Control Board (Regional Board) staff to prevent degradation of municipal drinking water quality in water supply reservoirs downstream from Vineyard Properties that would be authorized to discharge waste under the General Permit.

6-1

Background

The City relies upon two local reservoirs — Milliken Reservoir and Lake Hennessey — to provide more than half of the public drinking water supplies needed to serve 86,000 City residents, certain neighboring cities and approximately 2,200 individual water service accounts in unincorporated Napa County (County).

6-2

Milliken Reservoir provides the highest source water quality of all the City's water sources, followed by Lake Hennessey and then the State Water Project (SWP), which delivers water imported from the Sacramento River, whose seasonal quality is significantly lower than that of Milliken and Hennessey reservoirs. The City faces increasingly stringent drinking water quality standards and customer expectations, and source water quality is among the factors guiding the City's use of its different water sources to provide public water service that is affordable, reliable and safe.

The Milliken Creek Watershed encompasses 6,141 acres above Milliken Reservoir, of which the City owns approximately 2,200 acres. The remaining acreage is under increasing vineyard development pressure because the Napa Valley floor is essentially fully developed, so vineyard developers are focusing their efforts on surrounding hillsides and watersheds. With the end of the Great Recession, new land development is progressing again. The County has been approving vineyard development projects upstream from the City's municipal drinking water reservoirs and relying on erosion control plans to prevent water quality impacts to the City's sources of drinking water supply. For example, new vineyard projects ranging in size from 24-acres to 368 acres that drain into the Milliken Reservoir watershed have been approved in 2016.

The watershed above Hennessey Reservoir encompasses 34,000 acres, of which the City owns 2,822 acres. The continuing trend of vineyard development in this much larger watershed (34,000 acres versus 6,141 acres) correlates with a trend of degrading water quality and increased algal growth and corresponding total organic carbon (TOC), a pre-cursor to heavily regulated disinfection byproducts in Hennessey Reservoir — even with the County's erosion control planning program in place.

6-2 cont.

Reservoir water quality is affected by pesticides, herbicides and other natural and man-made constituents, including phosphates, nitrates, sulfates and other nutrients that degrade drinking water quality. The City participates in the California Environmental Quality Act (CEQA) review process for projects in the watershed, but the County does not require monitoring of vineyard discharges unless the applicant is willing to do so voluntarily. When possible, the City is working with willing project applicants to participate in voluntary monitoring programs and to address BMP improvements on a case by case basis.

According to the County's Agricultural Commissioner, more than 832,200 pounds of sulfur was applied for grape growing in Napa County in 2015, along with 18,750 pounds of lime-sulfur, and 9,000 pounds of ammonium sulfate. Sulfur and sulfates degrade drinking water quality and cause taste and odor problems addressed by a secondary MCL of 250 mg/L.

Phosphates pose another major threat for drinking water quality. More than 50,000 pounds of glyphosate were applied for grape growing in Napa County in 2015. Phosphates, including glyphosate, increase nutrient concentrations in receiving waters, which spurs the growth of algae. That algae dies, decomposes, consumes dissolved oxygen needed by aquatic biological resources, and imparts a foul taste and odor to drinking water. Treatment with ozone and granular activated carbon is required to mitigate such drinking water quality degradation. The City's drinking water treatment plants for Milliken and Hennessey reservoirs do not include

ozone or granular activated carbon in their treatment trains. Water quality degradation from nutrient discharges caused by development and operation of vineyards in the Milliken and Hennessey watersheds is causing water quality degradation that accelerates the need for costly drinking water treatment plant upgrades.

6-2 cont.

Specific Comments

The City appreciates the opportunity posed by development of the General Permit to assess and prevent water quality degradation from vineyard discharges, specifically as they relate to watersheds that supply municipal drinking water supplies and the EIR's analysis of hydrology and water quality, which states:

> **Section 8. HYDROLOGY AND WATER QUALITY**
> This section presents: a) baseline physical conditions with regard to hydrology, groundwater, and water quality in the Napa River and Sonoma Creek watersheds including the effects of natural processes and land-use activities on the baseline conditions; b) relevant laws and policies that provide for water quality, groundwater, and flood protection; and c) potential impacts to hydrology and water quality that may result from project implementation and mitigation measures to lessen those impacts.

6-3

Comment: The EIR explains that the proposed General Permit "authorizes discharges of pollutants to the waters of the State that originate on Vineyard Properties" (EIR at p. 47), but the EIR does not seem to clearly define the environmental baseline used to assess the significance of water quality impacts from those authorized discharges. Under CEQA, the environmental baseline may not include degradation from new vineyard discharges authorized by the General Permit.

6-4

Recommendation: Please revise the EIR to clearly describe the environmental baseline used to assess the significance of water quality impacts from new discharges authorized by the General Permit.

Comment: Section 8.5.1 of the EIR describes the "Regulatory Setting, " including State water quality regulatory requirements. Section 8.6 of the EIR describes the thresholds of significance, or criteria, used to determine the significance of General Permit's water quality impacts. Those criteria include whether the General Permit: (1) "would violate any water quality standards or waste discharge requirements;" or (2) "would otherwise substantially degrade water quality." Neither Section 8.5.1 nor section 8.6 explain that — where existing receiving water quality equals or is better than the floor established by water quality standards — the State's Antidegradation Policy applies to inform application of the EIR's significance criteria.

6-5

Where a General Permit would authorize vineyards to discharge nutrients and other wastes into receiving waters whose baseline quality exceeds water quality standards, the State Water Resource Control Board's (State Board) Antidegradation Policy specially protects such "high quality" waters. (State Board Resolution 68-16.) To prevent degradation of high quality waters, Antidegradation Policy requires application of "best practicable treatment or control" as mitigation.

Recommendation: Please revise the EIR to apply State Antidegradation Policy through the significance criteria used to assess the General Permit's water quality impacts. 6-5 cont.

Comment: The EIR explains that the General Permit would help implement the sediment TMDL for the Napa River and relies heavily on the TMDL to support the EIR's conclusion that the General Permit will have a beneficial impact with respect to water quality. However, the water quality monitoring associated with the sediment TMDL did not address drinking water quality in any of the five major public water supply reservoirs within the area in which vineyard discharges would be authorized by the General Permit. There was no assessment of impacts in the reservoir water column due to land-use activities relative to baseline conditions. All monitoring locations were assessed downstream of municipal drinking water supplies and ignored the impacts of sedimentation, nutrients and identification of nonpoint source pollutants that need to be reduced to avoid degradation of reservoir water quality and impacts to the established beneficial uses. 6-6

Recommendation: Prior to adopting and finding that the General Permit will cause no significant adverse water quality effects, the beneficial uses of water as a drinking water supply should be considered. Monitoring should be performed and existing historical data should be assessed.

Nutrient addition in the water column of a drinking water supply, in the presence of sunlight, causes algal growth that, in turn, causes taste and odor problems in public drinking water supplies. The City has been monitoring algal growth and comparing historical temperature data as well as residual nitrogen and phosphorous in the water column of its reservoirs. Data from water samples analyzed in areas of high algal blooms shows nitrogen and phosphorous are co-limiting nutrients. Hence, increases in nutrients will increase algal growth. Algal growth has shown an increase since 2007 even though the application of algaecide to reduce growth has increased to combat the problem. Individual dosages were doubled in volume as of 2008.

Comment: Federal and state drinking water quality standards continue to become more and more stringent. Caught between long-term trends of increasingly stringent drinking water quality standards, on one hand, and increasing vineyard development, on the other hand, the City and its water customers end up bearing the burden of degraded water quality from vineyard discharges and the need to carry out costly drinking water treatment upgrade projects to protect public health and to avoid fines and penalties. 6-7

The Regional Board non-point source regulatory staff working on the vineyard General Permit do not seem to be coordinating with the Regional Board's regulatory staff working on the City's discharge permit for its drinking water treatment plants. Although the City does not use pesticides in its drinking water treatment process — despite numerous objections, comments and conversations regarding monitoring requirements over the "reasonable potential analysis" with Regional Board staff prior to issuance of the April 2016 order R2-2016 -0009 — the City of Napa is now required to monitor its receiving/source water for all pesticides to levels below drinking water standards. This monitoring might trigger treatment upgrades and fines and penalties if certain thresholds are exceeded.

While the discharge permit for washwater discharged by the City's Hennessey drinking water treatment plant strictly regulates pesticide concentrations in source water from the reservoirs, the EIR for vineyard discharges authorized by the General Permit does not provide any meaningful or adequate analysis of resulting degradation of receiving water quality in the City's municipal drinking water reservoirs. It seems that washwater from the City's treated drinking water process, which has no reasonable potential to contribute pesticides into the reservoir, is being regulated for pesticides contributed by upstream vineyards whose discharges would be authorized by the General Permit. It seems illogical, unjust and ineffective for the Regional Board to approve a General Permit authorizing vineyard discharges of pesticides into the City's public water supply reservoirs based on a CEQA finding of insignificant water quality impacts (but no discharge quality monitoring and adaptive management) — on one hand — and for the Regional Board to regulate the City's drinking water treatment plant discharge in a way that makes the City responsible for the quality of reservoir source water that is degraded by vineyard discharges of pesticides and other wastes — on the other hand. When non-point sources in the watershed contribute pesticides or other regulated drinking water constituents into the City's drinking water supply reservoir under the General Permit — without any monitoring and adaptive management requirements on vineyard discharge quality — and monitoring of those constituents at the City's drinking water treatment plant exceed thresholds under the City's discharge permit, the City should not have to pay fines.

6-7 cont.

Recommendation: Recognize and correct the failure to coordinate discharge permitting for vineyards and the City's drinking water treatment plants, and apply Antidegradation Policy (State Water Quality Control Board Resolution 68-16). Require monitoring of pesticides and nutrients in discharges from vineyards in watersheds that contribute to municipal drinking water supplies, because those discharges have the "reasonable potential to contribute" to violation of Antidegradation Policy and water quality standards, require "best practicable treatment or control," and prohibit ongoing and additional degradation.

The City respectfully requests assistance from the Regional Board to ensure non-point sources do not contribute pesticides and nutrients into the waterways feeding the City's public drinking water supplies and, furthermore, if they are contributed, to ensure they do not result in automatic fines to the City — the drinking water provider under the permitted NPDES discharge. The City seeks to work with the Regional Board and all stakeholders to proactively address the issue at the source and to protect water quality for maximum beneficial use over the long term, as required by Article X, Section 2 of the California Constitution.

6-8

Thank you for your consideration and attention to this matter. If you would like clarification feel free to contact me at (707) 257-9319.

Letter
7

Law Offices of
THOMAS N. LIPPE, APC

201 Mission Street
12th Floor
San Francisco, California 94105

Telephone: 415-777-5604
Facsimile: 415-777-5606
Email: Lippelaw@sonic.net

September 14, 2016

By Email to mnapolitano@waterboards.ca.gov

Mike Napolitano
San Francisco Bay Water Quality Board
1515 Clay Street, 14th Floor
Oakland, CA 94612

Re: Comments on Draft EIR for General Waste Discharge Requirements for Vineyard Discharges in the Napa River and Sonoma Creek Watersheds

Dear Mr. Napolitano:

This office represents Living Rivers Council (LRC), a non-profit association, with respect to the General Waste Discharge Requirements for Vineyard Discharges in the Napa River and Sonoma Creek Watershed (GWDR). I write on LRC's behalf to submit comments on the Draft Environmental Impact Report (DEIR) for this project and to object to approval of the GWDR Order. 7-1

1. The DEIR's Analysis of the Extent to Which the GWDR's and the Napa River Sediment TMDL's Means of Compliance with Surface Erosion Standards May Increase Runoff and Runoff Related Sedimentation of the Napa River is Informationally Deficient.

The DEIR assumes that the Draft GWDR Order's runoff performance standards will ensure that the runoff and runoff related sedimentation impacts of using engineered drainage facilities to comply with the GWDR's surface erosion standards are less than significant. (DEIR, pp. 245-247.) This assumption reflects multiple failures to proceed in the manner required by law, including unlawfully deferring the development of mitigation measures and conflating project components and mitigation measures. In addition, this assumption is not supported by substantial evidence. 7-2

The Board must evaluate the environmental effects of the "means of compliance," including "reasonably foreseeable means of compliance" specified in any TMDL, including performance standards. (*City of Arcadia, supra,* 135 Cal.App.4th at pp. 1424-25; 23 Cal. Code Regs. § 3777(b)(4)(A) & (B).) Where, as here, the impacts of the means of compliance may be significant, the environmental review must be "EIR level." (*City of Arcadia,, supra,* 135 Cal.App.4th at p. 1424,)

The Napa River Sediment TMDL includes a performance standard for controlling surface erosion stating: "Control excessive rates of sediment delivery to channels resulting from vineyards." (Exhibit 1, TMDL, p. 19, Table 4.1.)

As discussed in LRC's previous comments on the Napa River Sediment TMDL and on numerous Erosion Control Plans approved by Napa County for vineyard conversion projects, the installation of engineered drainage facilities to reduce surface erosion often lead to increases in runoff and stream sedimentation by efficiently channeling and directing surface and subsurface flows to downstream channels.[1] This is a primary vector causing channel incision, channel instability, bank failures, and increases in sediment transport to low gradient reaches of Napa River tributary streams and to the Napa River. Thus, landowners' attempts to comply with the Napa River Sediment TMDL's performance standard for controlling surface erosion lead directly to increases in runoff and sedimentation.

7-2 cont.

In its appeal brief filed in the litigation Living Rivers Council vs. State Water Resources Control Board, Appellate No. A137082, the Board conceded that efforts to control surface erosion to comply with the Napa River Sediment TMDL can increase runoff, which can lead to increased sedimentation of the Napa River. (Exhibit 7, Respondents Brief, pp. 29-30.) The Board also conceded that the TMDL's runoff standard is a mitigation measure that it adopted to reduce the TMDL's significant sedimentation impact caused by efforts to comply with the TMDL's surface erosion standard. (Exhibit 7, Respondents Brief, pp. 29-30.) Yet the DEIR treats the GWDR's runoff standards as if they are project components only, not mitigation measures. This is unlawful under CEQA, because, an EIR cannot incorporate "the proposed mitigation measures into its description of the project and then conclude[] that any potential impacts from the project will be less than significant." (*Lotus v. Department of Transportation* (2014) 223 Cal.App.4th 645, 655-57 (*Lotus*).) The EIR's failure to discuss the runoff standards as mitigation measures rather than as part of the project "precludes both identification of potential environmental consequences arising from the project and also thoughtful analysis of the sufficiency of measures to mitigate those consequences." (*Lotus, supra*, 223 Cal.App.4th 655-57.) CEQA does not allow the EIR to avoid analysis of the relative effectiveness of the runoff standards to mitigate runoff related sedimentation impacts in comparison with other mitigation strategies.

7-2a

7-2 cont.

The Napa River Sediment TMDL's performance standard for controlling increases in runoff is "Effectively attenuate significant increases in storm runoff, so that the runoff from vineyards shall not cause or contribute to downstream increases in rates of bank or bed erosion." (Exhibit 1, TMDL, 10, Table 4.1.) The TMDL, however, provides no guidance as to how landowners or the Board would model or measure compliance with this standard. Instead, the TMDL deferred the development of the specifics of this mitigation measure to the adoption of a Report of Waste Discharge (WDR) waiver policy or general permit. (See Exhibit 2, TMDL, p. 19, Table 4.1, Actions; note 4.) The Board's response to this concern in the TMDL process was that "The details of the SF Bay Water Board's analytical approach will be developed in consultation with a Technical Advisory Committee that has been formed to assist SF Bay Water Board with technical issues related to

[1]See LRC comments letters referenced in Appendix.

development of the WDR waiver." (Exhibit 5, TMDL AR 1760-61.)[2]

7-2 cont.

The DEIR for the proposed GWDR, however, fails to develop sufficient guidance as to how landowners or the Board would model or measure compliance with the TMDL's runoff standard for a number of reasons discussed in the following sections. Therefore, the GWDR DEIR unlawfully defers the development of this mitigation measure.

7-2b

LRC's scoping comments on the GWDR EIR requested that the EIR analyze the extent to which measures implemented to control surface erosion to comply with the GWDR and the Sediment TMDL may increase runoff and lead to increased sedimentation of the Napa River. Unfortunately, the DEIR's discussion of this topic is insufficient due to legal errors and because its conclusions are not supported by substantial evidence.

7-2c

In Sections 1.0, 8.7 (Impact 8.2), and 10.2.5, the Draft EIR acknowledges the fact and importance of this type of impact. But instead of assessing the nature and extent of the impact, the DEIR assumes it will not occur because the goal of the TMDL is to reduce sediment loading a by 50% compared to existing conditions. (See e.g. DEIR, Impact 8.1, p. 244: "As described in the discussion of Impact 6.1a, road sediment discharge, and land-use related erosion of headwater channels, gullies, and landslides will all be reduced substantially (on average by 50 percent) within the Vineyard Properties enrolled in the permit"; Impact 8.2, p. 245: "The General Permit requires actions to control sediment discharges and attenuate storm runoff increases that occur as a result of development and management of farms and roads, and also to control pesticide and nutrient discharges from farms (See Section 1.0, Introduction). Actions to control (attenuate) storm runoff increases *by definition* also enhance groundwater recharge.)" (emphasis added); Impact 8.2, p. 245.)

7-2 cont.

The DEIR also relies on the achievement of two performance standards to avoid significant runoff/sedimentation impacts from efforts to control surface erosion, as follows:

> d) Storm Runoff from an existing Hillslope Vineyard: shall not cause or contribute to downstream increases in bed and/or bank erosion (see below, Bed and Bank Erosion).

---

[2]For a CEQA lead agency to defer the development and adoption of specific mitigation measures until after project approval, the EIR must specify a performance standard and meet several additional requirements, including: (1) practical considerations prohibit devising such measures early in the planning process; (2) there be evidence that achieving the performance standard is feasible; (3) the agency commits itself to devising measures that will satisfy the performance criteria (*Gentry v. City of Murrieta* (*Gentry*) (1995) 36 Cal.App.4th 1359, 1393-1396); (4) there be evidence that meeting the performance standard is effective in reducing significant impacts; and (5) there be objective criteria for measuring success." (*Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 93, 95 (*CBE*).)

> e) Storm runoff from a new Hillslope Vineyard: a) peak storm runoff in 2-, 10-, 50-, and 100-year (24-hour duration) rainfall events following vineyard development shall not be greater than pre-development peak storm runoff; and b) shall not cause or contribute to downstream increases in bed and/or bank erosion (see below, Bed and Bank Erosion)

(DEIR, pp. 245-47, Impact 8.2; Draft Order, Attachment A, p. 3.)

The first performance standard for new vineyards (i.e., peak storm runoff in 2-, 10-, 50-, and 100-year (24-hour duration) rainfall events following vineyard development shall not be greater than pre-development peak storm runoff) is excellent in concept, but is too uncertain and unspecified to reliably predict its achievement. 7-2 cont.

For example, as discussed by Mr. Kamman (Exhibit 1), the modeling needed to conduct a pre-project assessment of increases in runoff from new vineyards must include the runoff increase effects of using engineered drainage facilities to reduce surface erosion. This performance standard fails to include this element.

In another example discussed by Mr. Kamman (Exhibit 1), the modeling must include an appropriate sized and located geographic area to disclose runoff increase effects where they may cause environmental harm. This performance standard fails to provide guidance on this critical variable.

The performance standard for existing vineyards and the second performance standard for new vineyards (i.e., shall not cause or contribute to downstream increases in bed and/or bank erosion) is too uncertain and unspecified to reliably predict its achievement. 7-2d For example, as discussed by Mr. Kamman (Exhibit 1), this standard is entirely dependent on monitoring and comparison to undisturbed sites to disclose whether changes in infiltration rate is causing or has caused increases in runoff, but this method omits other critical factors, such as the use of engineered drainage facilities installed to reduce surface erosion. As a result, the monitoring described under "Bed and Bank Erosion" (See Draft Order, Attachment A, p. 4-5) and in the monitoring protocol (See Draft Order, Attachment E) may disclose whether bed/bank erosion is occurring but will not disclose whether a vineyard is causing or contributing to such increases. 7-2 cont.

Further, the DEIR's analysis of the runoff/sedimentation impacts of the GWDR's surface erosion standard assumes that the TMDL's and GWDR's means of compliance will actually work to achieve the TMDL's and GWDR's goal of reducing sedimentation of the Napa River. This assumption is based on the DEIR's unlawful deferral of mitigation measures and is not supported by substantial evidence.

As discussed in section 4 below, this assumption is doubly problematic, because—as it proposed when this project was a WDR waiver policy—the Board proposes to defer the hard work of assessing and mitigating increases in runoff to a later, post-approval process. This time, the

GWDR delegates this task to regulated landowners and their retained, private, third party Farm Plan certifiers. 7-2 cont.

2. The DEIR Fails to Assess Increases in Runoff and Runoff Related Sedimentation from Increases in Subsurface Flow.

As explained by Dennis Jackson in his comment letter on the Mitigated Negative Declaration for the proposed WDR Waiver Policy (Exhibit 4a), and by Mr. Kamman (Exhibit 1), the GWDR will cause vineyard owners to infiltrate precipitation runoff into the ground by using runoff detention basins, but the EIR does not evaluate the extent to which this will lead to channel incision and downstream sedimentation as a result of concentrating and increasing subsurface flows. As explained by Mr. Jackson and Mr. Kamman, this runoff mechanism is likely to cause environmental harm. 7-3

3. The DEIR's Analysis of the GWDR's Impacts on Groundwater is Informationally Deficient.

The DEIR concludes that impacts on groundwater are less-than-significant, based entirely on the DEIR's assumption that the GWDR will not increase runoff. As discussed in sections 1 and 2 above, this assumption reflects multiple failures to proceed in the manner required by law and is not supported by substantial evidence. 7-4

4. The DEIR's Project Description Is Incomplete and its Analysis of the GWDR's Environmental Impacts Is Unlawfully Segmented.

The Draft EIR's project description is incomplete because its fails to describe the Farm Plans that are critical components of the regulatory program the EIR is intended to evaluate for environmental impact.

The GWDR is a "program" of environmental regulation as described in CEQA Guideline 15168(a). The program includes Farm Plans as described in Appendix A to the Draft Waste Discharge Requirements for Vineyard Properties Order (Draft Order). These farm plans are or relate to "individual activities" which implement the program, as described in paragraph 4 of subdivision (a) of Guideline 15168. 7-5

The Farm Plans represent a critical step in the Board's regulation of vineyard discharges. The Farm Plans are the regulatory mechanism by which the GWDR attempts to ensure that enrolled vineyards achieve the performance standards for surface erosion, runoff, and stream bed and bank erosion. These performance standards are intended to achieve both the sediment control objectives of the Napa River TMDL, the Clean Water Act and the Porter Cologne Water Quality Act and the impact reduction objectives of the EIR's mitigation measures for surface erosion, runoff, and stream bed and bank erosion.

Therefore, the Farm Plans are components of the "project description" and must be subject to public environmental review under CEQA. Instead, the GWDR establishes a system whereby the Farm Plans will be prepared after approval of the GWDR and certified by private third parties if such third parties "conclude that upon its [Farm Plan's] full implementation, the Vineyard Property would achieve all applicable performance standards for discharge." (Draft Order, 43.) In essence, the Draft Order attempts to create a "CEQA shelter" by which vineyard owners may shield critical components of their vineyards' environmental analyses and mitigation measures from public scrutiny under CEQA. 7-5 cont.

Because the GWDR is a "program" under CEQA, it may be permissible to defer the development of the Farm Plans to a later time, after approval of the GWDR—if appropriate performance standards are provided. But it is not permissible for the Board to shield these project/program components from public environmental review under CEQA.

Because this approach out-sources a large share of the burden of regulating vineyard compliance with the Basin Plan to regulated vineyard owners and private non-governmental entities, it also represents an unconstitutional delegation of governmental authority to the regulated community. (*Bayside Timber Co. v. Board of Supervisors* (1971) 20 Cal. App. 3d 1.)

5. The DEIR's Discussion of All Discharge Performance Standards Is Not Supported by Substantial Evidence.

Under the Clean Water Act, states are responsible for developing water quality standards and regulating nonpoint[3] sources of water pollution. (*City of Arcadia, supra,* 135 Cal.App.4th at pp. 1403-1404.) Additionally, states must implement a "water-quality based" program for cleaning up polluted rivers, streams or smaller water segments that regulation of point source pollution (the NPDES permit system) has not adequately addressed. (*Id.* at p. 1404; 33 U.S.C. § 1313(d)(1)(A); 40 C.F.R. § 130.7(b) (2003).) Specifically, states must (1) make a list of polluted water bodies (referred to as a "303(d) list"); (2) rank them in order of priority; and (3) determine the maximum amount of a pollutant, from all sources, that may be discharged or "loaded" into each impaired water body. *City of Arcadia,* 135 Cal.App.4th at pp. 1403. 7-6

The maximum amount of permissible pollution is called a "total maximum daily load" or "TMDL" and "must be 'established at a level necessary to implement the applicable water quality

[3] "Nonpoint" sources are those which do not discharge from a "discernable, confined and discrete conveyance" or "point source." (*City of Arcadia, supra,* 135 Cal.App.4th at p. 1403, citing *Defenders of Wildlife v. EPA* (10th Cir.2005) 415 F.3d 1121, 1123-1124.) Nonpoint pollution sources recognized by the Environmental Protection Agency include sediment from improperly managed construction sites, crop and forest land, and eroding stream banks. (*Id.* at fn 3.)

standards'." (*Ibid.*.) A TMDL assigns a waste load allocation to each point source, and once developed, effluent limitations in NPDES permits must be consistent with the TMDL's waste load allocation. (*Ibid*.) The EPA has authorized California to adopt and administer the NPDES permit program for the state. (*Id.* at p. 1405, citing 54 Fed. Reg. 40664 (Oct. 3, 1989).)

"California implements the Clean Water Act through the Porter–Cologne Act (Wat. Code, § 13000 *et seq*.)." (*City of Arcadia, supra,* 135 Cal.App.4th at p. 1405.) Under the Porter–Cologne Act, regional water boards (operating under the purview of the State Water Board) must "formulate and adopt water quality control plans, commonly called basin plans, which designate the beneficial uses to be protected, water quality objectives and a program to meet the objectives." (*Id.*, citing Wat. Code, §§ 13050, subd. (j), 13240.) "'Water quality objectives' means the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area." (*Id.*, quoting Wat. Code, §§ 13050, subd. (j), 13240; § 13050, subd. (h).)

7-6 cont.

Thus, the Board is required to legally regulate sediment discharges from vineyards to achieve the objectives of the Clean Water Act and the Basin Plan. Therefore, any system of regulation that the Board adopts that fails to achieve these objectives causes environmental harm as compared to Board adoption of a system of regulation that does achieve these objectives.

As discussed above, and in Mr. Kamman's letter regarding additional performance standards described on page 3 of the Draft Order, the proposed GWDR will not achieve the objectives of the Clean Water Act or Basin Plan. But the DEIR fails to identify this as a significant impact and to discuss feasible alternative regulatory approaches that would achieve these objectives.

6. The DEIR's Discussion of Alternative 3 Is Not Supported by Substantial Evidence.

The DEIR's discussion of "Alternative 3: Enroll Vineyards $\geq$. 5 acres throughout Project area, except those Upstream of Reservoirs" states:

7-7

> This alternative would be as effective as the Proposed Project in achieving the fundamental objective because the Napa River sediment impairment is related to elevated amounts of sand in the bed of the Napa River and in tributary reaches that provide potential habitat for anadromous salmonids. Any sand discharged from land areas located upstream of the municipal reservoirs is trapped in the very large reservoirs, and therefore is not discharged into the Napa River, and/or into tributary reaches that provide habitat for anadromous salmonids.

(DEIR, p. 284.)

These assertions are simply false. For example, a recent EIR for the Walt Ranch Vineyard Conversion Project recognizes that reservoirs in the Napa drainage trap coarse sediments, but that fine sediments pass through, stating:

> The construction of several large dams between 1924 and 1959 on major tributaries in the eastern Napa River watershed and northern headwater areas of Napa River has affected sediment transport processes into the mainstem Napa River by reducing the delivery of the coarse load sediments to the river. Thirty percent of the Napa River watershed drains into dams, such that ponds and reservoirs behind these dams capture a significant fraction of all coarse sediment input to channels (Napolitano et al., 2009).
>
> Historically, the Napa River system has typically been described as a gravel-bed river; more recently, the Napa River has become increasingly dominated by finer sediments. The sources for these finer sediments include a variety of land uses, infrastructure construction, road runoff, and in-stream erosion sediment sources. Dams that trap coarse sediment in the area have not significantly reduced the degree to which finer sediments are being delivered to the mainstem Napa River and its tributaries. As a result of this fine sedimentation, habitats for steelhead, Chinook salmon, and California freshwater shrimp, which rely on more gravel substrate in the river, have been negatively affected from reduced gravel permeability. (Stillwater Sciences and W. Dietrich, 2002). The San Francisco Bay Regional Water Quality Control Board (RWQCB) has released a technical report that proposes a total maximum daily load (TMDL) for the Napa River that calls for substantial reductions in the amount of fine sediment deposits into the watershed to improve water quality and maintain beneficial uses of the river, including spawning and rearing habitat for salmonid species.

7-7 cont.

(Exhibit 3, Walt Ranch Final EIR, p. 4.6-8.)

The Regional Water Board's final Staff Report for the TMDL describes the impacts of fine sediment loading, stating:

> The limiting factors study documented two adverse impacts of sediment pollution on steelhead and salmon habitat. The first impact is due to a high concentration of fine sediment deposited in the streambed, which adversely affects spawning and rearing habitat for both species. The second impact is due to channel incision, which occurs primarily in the mainstem and lower tributaries and affects Chinook salmon to a much greater extent (because most steelhead spawn further upstream in the tributaries). These sediment-related impacts are discussed below:
>
> • Documentation of low permeability values at potential spawning sites for salmon indicates a high concentration of fine sediment in the streambed. Successful salmon and steelhead reproduction depends on adequate water flow through gravel in order for eggs to hatch and larvae to grow. If fine sediment clogs the gravels, flow is very slow, egg mortality can be very high, and few young fish (fry) may emerge from the streambed. Low gravel permeability is predicted to cause high rates of mortality

between spawning and emergence at potential spawning sites in Napa River and its tributaries.

• High concentration of fine sediment in the streambed also can cause significant decreases in growth and survival of juvenile salmonids during freshwater rearing by reducing availability of vulnerable prey species and increasing activity level, aggressive behavior, and attacks between juvenile salmonids (Suttle et al., 2004).

• Juvenile steelhead use open spaces between clusters of large cobbles and/or boulders as winter refuges from predators and high flows (Hartman, 1965; Chapman and Bjorn, 1969; and Meyer and Griffith, 1997). As the concentration of fine sediment in streambed increases, quality of winter rearing habitat is significantly diminished with consequent adverse impacts to survival.

• Scour of spawning gravel during commonly occurring peak flows (e.g., bankfull) can be a significant source of mortality to incubating eggs and larvae of salmon and trout species (McNeil, 1966; Montgomery et al., 1996). Human actions that increase rate of sediment supply, and/or cause it to become finer, will cause the streambed to become finer, facilitating an increase in mean depth and/or spatial extent of scour (Carling, 1987). 7-7 cont.

• Active and rapid channel incision in mainstem Napa River and lower reaches of its major tributaries has greatly reduced quantity of gravel bars, riffles, side channels, and sloughs, and has greatly decreased frequency of inundation of adjacent flood plains. These features and processes provide essential spawning and juvenile rearing habitat for Chinook salmon, which reside primarily in the mainstem Napa River. Therefore, channel incision appears to be a key factor limiting Chinook salmon run size. Channel incision, and associated bank erosion in areas underlain by thick alluvial deposits, also appears to be a significant source of sediment delivery to Napa River. Shallow groundwater stored in the valley floor adjacent to incised channel reaches is more rapidly depleted during the spring and summer, causing spring and summer baseflow persistence to be reduced, and the quantity and quality of cold pools (e.g., those fed by groundwater inputs) to be diminished.

(Exhibit 5, TMDL AR 1590-91 [Final TMDL Staff Report, pp. 8-9].)

As a result, the DEIR's analysis of the comparative impacts and benefits of Alternative 3 is not supported by substantial evidence and the EIR fails to analyze a reasonable range of project alternatives.

7. The DEIR Fails to Discuss a Reasonable Range of Alternatives. 7-8

Every single project alternative mentioned in the DEIR, including project alternatives

rejected for detailed discussion and the project alternatives accepted for detailed discussion, involves less regulation. Not one involves tighter regulation. This is patently unreasonable. 7-8 cont.

The DEIR should discuss alternatives regulatory approaches in which private third party certifiers play no role or in which each "covered" vineyards must submit an individual Report of Waste Discharge application rather than enrolling in a General Permit. 7-9

Thank you for your attention to these comments. 7-10

Very Truly Yours,

Tom Lippe

Thomas N. Lippe

APPENDIX

LRC has been a committed stakeholder at every step of the process leading to the proposed GWDR. LRC's comment letters relating to the issues raised in this letter include:

1. August 5, 2014, comment letter from Tom Lippe to the Regional Board Re: Scoping Comments re General Waste Discharge Requirements for Vineyard Discharges in the Napa River and Sonoma Creek Watershed.

2. February 1, 2013, comment letter from Tom Lippe to the Regional Board Re: Mitigated Negative Declaration for the proposed "Conditional Waiver of Waste Discharge Requirements For Discharges from Vineyard Properties in the Napa River and Sonoma Creek Watersheds" attached hereto as Exhibit 4.

   a. Letter from Dennis Jackson to Thomas Lippe dated February 1, 2013, attached hereto as Exhibit 4a.

LRC submitted voluminous comments on the Basin Plan Amendment for the Napa River Sediment Total Maximum Daily Load ("Napa River Sediment TMDL") which pertain to the issues raised in this letter. These letters are included in the Administrative Record for the Napa River Sediment TMDL lodged in the Superior Court in the action entitled *Living Rivers Council v. State Water Control Board*, Alameda Superior Court Case No. RG11560171 (attached as Exhibit 5); and include the following:

3. August 18, 2010, comment letter from Tom Lippe to the State Board (Exhibit 5, TMDL AR 10349), including:

   a. Comment letter dated August 5, 2010, from Dennis Jackson (Exhibit 5, TMDL AR

10360);

b. Comment letter dated August 17, 2010, from Patrick Higgins (Exhibit 5, TMDL AR 13077);

4. July 6, 2009, comment letter from my office to the Regional Board (Exhibit 5, TMDL AR 09821), including:

a. Comment letter dated July 5, 2009, from Dennis Jackson (Exhibit 5, TMDL AR 10188);

b. Comment letter dated July 2, 2009, from Dennis Jackson (Exhibit 5, TMDL AR 10166);

c. Comment letter dated July 3, 2009, from Patrick Higgins (Exhibit 5, TMDL AR 10193);

5. October 20, 2008, comment letter from my office to the Regional Board (Exhibit 5, TMDL AR 09592), including:

a. Comment letter dated October 19, 2008, from Dr. Robert Curry (Exhibit 5, TMDL AR 09748);

b. Comment letter dated October 17, 2008, from Dennis Jackson (Exhibit 5, TMDL AR 09755);

6. May 7, 2008, comment letter from my office to the State Board (Exhibit 5, TMDL AR 09470), including:

a. Comment letter dated April 24, 2008, from Dennis Jackson regarding the Napa River Sediment TMDL (Exhibit 5, TMDL AR 09474);

b. Comment letter dated May 6, 2008, from Patrick Higgins regarding the Napa River Sediment TMDL (Exhibit 5, TMDL AR 09511);

c. Comment letter dated May 7, 2008, from Dr. Robert Curry regarding the Napa River Sediment TMDL attached hereto as Exhibit 6 (Exhibit 5, TMDL AR 09563).

7. August 15, 2006, comment letter from my office to the Regional Board (Exhibit 5, TMDL AR 08848), including:

a. Comment letter dated August 11, 2006, from Dr. Robert Curry (Exhibit 5, TMDL AR 08861);

b. Comment letter dated August 11, 2006, from Dennis Jackson (Exhibit 5, TMDL AR 08876);

c. Comment letter dated August 12, 2006, from Patrick Higgins (Exhibit 5, TMDL AR 08902).

LIST OF EXHIBITS

1. Letter from Greg Kamman to Thomas Lippe dated September 14, 2016.

2. Napa River Sediment TMDL, p. 19, Table 4.1.

3. Excerpt of final EIR for Walt Ranch Vineyard Conversion Project, Napa County, p. 4.6-8.

4. February 1, 2013, comment letter from Tom Lippe to the Regional Board Re: MND for "Conditional Waiver of Waste Discharge Requirements For Discharges from Vineyard Properties in the Napa River and Sonoma Creek Watersheds."

4a. Letter from Dennis Jackson to Thomas Lippe dated February 1, 2013.

5. Administrative Record of Proceedings lodged in Living Rivers Council v. State Water Control Board, Alameda Superior Court Case No. RG11560171. [on DVD]

6. LRC's Opening Appeal Brief, filed in *Living Rivers Council v. State Water Control Board*, Appellate No. A137082.

7. Respondents Brief, filed in *Living Rivers Council v. State Water Control Board*, Appellate No. A137082.

8. LRC's Reply Appeal Brief, filed in *Living Rivers Council v. State Water Control Board*, Appellate No. A137082.

Kamman Hydrology & Engineering, Inc.
7 Mt. Lassen Drive, Suite B250, San Rafael, CA 94903
Telephone: (415) 491-9600
Facsimile: (415) 680-1538
E-mail: Greg@KHE-Inc.com

September 14, 2016

Thomas Lippe
Law Offices of Thomas N. Lippe APC
201 Mission St., 12th Floor
San Francisco, CA 94105

Subject: Review of Draft EIR for General Waste Discharge Requirements for Vineyard Dischargers in the Napa River and Sonoma Creek Watersheds.

Dear Mr. Lippe:

I have reviewed the DEIR dated July 15, 2016 for the General Waste Discharge Requirements for Vineyard Properties located in the Napa River and Sonoma Creek Watersheds and have the following comments.

1. Inadequate Performance Standards

In my professional opinion the DEIR or Draft Order do not present complete or reliable methods that evaluate Performance Standards for Farm Plan BMPs installed and maintained to control runoff and erosion at vineyard properties. The Performance Standards are presented in Attachment A of the Draft Order, while the monitoring and reporting requirements for vineyard Farm Plans at achieving Performance Standards are presented in Attachment E of the Draft Order. The following subsections present the Performance Standard followed by my comments.

a) Soil erosion in the Farm Area: soil loss rate ≤ tolerable soil loss rate. The tolerable soil loss rate is as defined by the USDA Soil Conservation Service (1994).

The 1994 USDA Soil Conservation Service report cited in this Performance Standard reports that the tolerable soil loss rate for most Napa County hillside soils ranges from 2 to 4 tons of tolerable soil loss per acre-year. Nowhere in the DEIR or Draft Order is there an explanation on how the Farm Area "soil loss rate" will be quantified for comparison to the USDA tolerable soil loss rates. Standard methods for quantifying soil loss include monitoring and modeling, however neither of these approaches are presented in the DEIR or Draft Order. Thus, I see no feasible way this Performance Standard can be evaluated or applied given the lack of guidance in the Draft Order.

b) Sediment delivery from existing unpaved roads: a) culvert inlets have a low plug potential; b) critical dips shall be installed at culverted crossings that have a diversion potential; and c) ≤ 25 percent of the total length of unpaved roads are hydrologically connected.

The Performance Standards associated with erosion and sediment transport for existing unpaved roads are qualitative in nature and don't actually evaluate the performance of any independent road BMP. As indicated in Attachment E of the Draft Order, the monitoring of this Performance Standard is referred to as "BMP Implementation Monitoring" for all (Tier 1-3) Dischargers. BMP Implementation Monitoring consists of establishing and monitoring Photo-points, "to document winter readiness, demonstrate annual maintenance practices and BMP implementation, and to document habitat and water quality conditions in receiving waters at and/or near points of discharge from the vineyard" (page 23 Attachment E, Draft Order). Photo-point records and field notes are to be appended to the Farm Plan. This type of monitoring can verify that a BMP measure was installed, but it does not evaluate if the BMP is functioning as intended and reducing sediment loads sourced from the unpaved roads. In short, this Performance Standard assumes that if the BMP is installed, it is functioning to provide the desired erosion control benefits – there is no requirement or guidance in the Monitoring Plan or Performance Standard to actually verify that the BMP is reducing erosion. Even if we assume the monitor makes a qualitative assessment on how the BMP is functioning, this is an unguided subjective opinion made by a "Qualified Professional" hired by the vineyard owner. Clear and more precise success criteria based on site specific monitoring is required in this Performance Standard to make consistent and reproducible determinations amongst different "Qualified Professionals".

c) Sediment delivery from new roads: all new roads (unpaved and/or paved) shall be storm-proofed roads.

See comments for item b) above.

d) Storm Runoff from an existing Hillslope Vineyard: shall not cause or contribute to downstream increases in bed and/or bank erosion.

To evaluate this storm runoff Performance Standard, Tier 1 Discharges need only comply with the BMP Implementation (Photo-point) Monitoring described above. The Draft Order does not explain how photographs would be used to determine if an existing vineyard is causing or contributing to downstream increases in erosion. I assume such an approach would require comparison of pre- and post-project photographs of receiving channels as a means to identify and estimate changes in bed or bank erosion. Pursuant to this level of qualitative monitoring, only a subjective conclusion, at best, can be made about storm runoff effects on receiving channels for Tier 1 Dischargers. Even if through Photo-point Monitoring it is concluded that the receiving bed or channel is eroding, how does one determine if erosion rates are increasing? This determination can't be made without first determining the existing rate of erosion. Further, how will it be determined if the existing erosion rate is acceptable (i.e., natural) versus elevated as compared to pre-existing vineyard runoff? A literal interpretation of this monitoring method for existing vineyards means that

current erosion rates in channels downstream of vineyard outfalls are acceptable (even if they are elevated above natural levels as a result of vineyard installation or operations and causing adverse impacts) and only further increase in the erosion rate would trigger non-compliance of this Performance Standard. It is my opinion that the BMP Implementation Monitoring approach and methods are not capable of determining: a) existing erosion rates (i.e., existing baseline conditions used to determine change); b) whether the existing erosion rates are elevated above desired levels, causing adverse impacts, or caused by vineyard installation or operations; and c) increases to the existing erosion rate. Therefore, the BMP Implementation Monitoring approach is not capable of evaluating this Performance Standard.

In addition to the BMP Implementation (Photo-point) Monitoring described above, the Monitoring Plans for Tier 2 and 3 Dischargers include requirements for BMP Effectiveness Monitoring. The BMP Effectiveness Monitoring approach for Tier 2 and 3 dischargers as described in Attachment E (pg. 25-26) of the Order only evaluates one of several variables controlling runoff from vineyards. . This effectiveness monitoring approach defines a field method to characterize hillslope vineyard soil infiltration capacity and assumes that once post-project infiltration capacity values are statistically similar or greater than values at paired sites under natural vegetation cover (i.e., representative of pre-project conditions), the performance standards for Hillslope Vineyard storm runoff shall be considered achieved. In summary, the BMP Effectiveness Monitoring assumes that if there is no change in vineyard infiltration capacity between pre- and post-project conditions, there will be no change in storm runoff rates, which, in turn, means no increase in erosion potential. We have demonstrated on the Walt Ranch project (and as described in detail on pages 245-246 of DEIR) that the presence of engineered drainage features can contribute significant increases in storm runoff and erosion potential for vineyards that display no difference in pre- and post-project infiltration rates. As presented in Section 2.0 of my comment letter on the Walt Ranch Erosion Control Plan dated August 26, 2016 (see Attachment A), integrating engineered drainage elements into storm runoff modeling of a new vineyard block results in storm runoff rates significantly higher than those modeled solely with altered and unaltered runoff curve numbers (i.e., infiltration capacity). The integration of engineered drainage features in this example resulted in vineyard runoff rates higher than the pre-project rates. Any analysis of runoff rates and BMP effectiveness that does not factor in the effect of engineered drainages or is based solely on an estimation of soil infiltration capacity of the vineyard does not consider all variables at play in characterizing runoff magnitude and erosion potential. Thus, this BMP Effectiveness monitoring approach should not be considered adequate at evaluating the impacts of runoff rates based on a single (of many) parameter affecting that rate.

The field method for the BMP Effectiveness Monitoring described in Attachment E of the Draft Order that outlines a method to estimate pre- and post-project soil

infiltration capacities is highly subjective and easily manipulated to provide biased outcomes. As someone who could be hired as a "Qualified Professional", I am confident that through preferred soil-testing site selection and/or elimination of "anomalous results" and retesting, I could easily bias results to provide a desired outcome. Therefore, I believe the BMP Effectiveness Monitoring protocol requires refinement or agency field supervision to eliminate what I see as an easily manipulable analysis.

e) Storm runoff from a new Hillslope Vineyard: a) peak storm runoff in 2-, 10-, 50-, and 100-year (24-hour duration) rainfall events following vineyard development shall not be greater than pre-development peak storm runoff; and b) shall not cause or contribute to downstream increases in bed and/or bank erosion.

The storm runoff Performance Criteria for new Hillslope Vineyards is expanded over that for existing vineyards to include quantification of peak storm runoff for rainfall events of selected recurrence intervals. I agree that this model-based quantification is a good approach towards identifying, quantifying and guiding mitigation for potential increases in storm runoff. However, in order to avoid the opportunity to manipulate the outcome, the Performance Standard needs to provide further guidance and direction on how to incorporate engineered drainage elements and clarify what drainage areas need to be modeled.

Based on my experience described above under item d), not incorporating engineered drainage elements into the rainfall-runoff modeling can significantly underestimate peak runoff rates. In order to capture the effects of engineered drainage elements, it is important to model runoff from the pre- and post-project watershed area above each proposed vineyard drainage outfall, whether the outfalls discharge on- or off-site. This scale of modeling avoids masking the effects of engineered drainage elements by modeling a larger project drainage, where vineyards do not lie within the primary modeled flow path. This scale of modeling also provides the required level of detail to effectively design runoff and erosion control BMPs.

An example on the importance in selecting representative model areas is provided in Section 10 of my comment letter on the Walt Ranch Project DEIR, dated November 20, 2014 and included as Attachment B. Although this example pertains to soil loss modeling, the concept of masking potential significant impacts through inappropriate sizing of model area is applicable to all types of numerical modeling including storm runoff modeling. The Walt Ranch DEIR conclusions regarding project-induced changes in erosion potential are based on summing vineyard block soil loss subtotals within the Milliken and Capell Creek watersheds and presenting the total (net) change for each watershed (Milliken and Capell). The net results indicate that there are 44- and 13-percent reductions in potential soil loss from the Milliken and Capell Creek watersheds, respectively. However, this type of lumping of results masks localized impacts, which when considered alone, could be considered a significant impact. A more thorough review of changes in modeled soil loss results indicates localized

increases in erosion potential from multiple vineyard blocks that contribute drainage and sediment to onsite Corps designated waters and wetlands located downstream of the proposed vineyards. These downstream creek, riparian and wetland areas host potentially sensitive biological resources, which would be potentially adversely impacted by increases in water and sediment runoff.

f) f) Pesticide management: An integrated pest management program shall be developed and implemented for the vineyard (UC Statewide IPM Program, 2015), and effective practices shall be implemented to avoid mixing, storage, or application of pesticides near wells and surface waters, or in ways that could contribute to receiving water toxicity.

The development and implementation of an integrated pest management program (IPMP) does not guarantee the elimination of agrochemical and pesticide loadings to surface waters. This Performance Standard lacks any means (e.g., monitoring) to evaluate if the IPMP is actually working.

g) Stream-Riparian Habitat Protection and Enhancement Actions

A required element of the Farm Plan includes (item 4e. page 5 of Attachment A, Draft Order), "Conservation practices to protect and/or enhance stream-riparian habitat complexity and connectivity." This element is addressed on page 7 (Attachment A, Draft Order) under the heading, "Stream-Riparian Habitat Protection and Enhancement Actions" and includes a list of channel conditions that need to be delineated and "assessed." It is not clear to me how this inventory of channel conditions is supposed to be assessed and translated into "conservation practices" or "habitat protection and enhancement actions." Nor does the Draft Order or DEIR provide Performance Standards with respect to the "actions" directed under this Farm Plan element.

2. Inappropriate Application of Performance Standards to Groundwater Recharge Assessment (DEIR Impact 8.2)

The assumption, presented in discussion of DEIR Impact 8.2, that meeting Performance Standards to reduce storm runoff result in increased infiltration and groundwater recharge is oversimplified and not entirely valid. BMPs such as gravel berms and basins that detain runoff during storm events can lead to increases in infiltration and groundwater recharge. However, these BMPs are commonly installed in response to other vineyard elements such as engineered drainage systems that collect and accelerate runoff through vineyards during all rain events. Engineered drainage systems reduce the residence time and opportunity for infiltration and groundwater recharge. To what degree these competing vineyard drainage enhancements and runoff/erosion BMP elements effect the net increase or reduction in infiltration requires more detailed analysis before making blanket assumptions on the effectiveness of runoff performance standards.

Other professionals reporting on the linkage of hydrologic processes between runoff and infiltration have also called into question the assumption that increased infiltration leads to reduced runoff and increased groundwater recharge. In his January 26, 2013 comment letter on Napa River Sediment TMDL Vineyard Waiver and ISMND (included as Attachment C), Dennis Jackson (hydrologist) provides considerable background and hydrologic explanation on accepted principals of surface and subsurface storm runoff. Mr. Jackson presents several examples of subsurface pipe flow contained in hydrologic literature that demonstrates infiltrated water does not uniformly reduce surface runoff rates, nor does all infiltrated water go to groundwater recharge.

On page 29 of their 2013 Hydrology Report[1] completed on behalf of the Walt Ranch vineyard expansion project EIR, RiverSmith Engineering reports on the fate of additional infiltration gains associated with vineyard development in the Milliken Creek watershed. They state the following.

> *The modeling results show a consistent pattern of a modest reduction in rainfall runoff within the Milliken watershed of Walt Ranch for the proposed vineyard blocks and the associated vineyard development practices. This is consistent for all modeled storm frequencies, 2-yr through the 100-yr event as shown in Tables 5, 6, 7 and 8.*
>
> *The reduction in the runoff peaks and associated runoff volumes is due to an increase in soil infiltration rates, primarily associated with the deep ripping practice. However, credit for the increased rate was only taken in the rocky soil groups where the ripping practice effectively changes the soil classification from Hydrologic Group D to Group C (higher infiltration rate).*
>
> *However, it is believed that much of this additional infiltration volume will return over time as "quick return flow" leading into the local drainages following the storm event. Also see discussion in Section 5.0 regarding rainfall infiltration into the rocky soil groups (Slade, 2013). Based on their estimate that 7% of the rainfall deep percolates into the underlying aquifer, about 90% of the additional infiltration due to ripping is likely to resurface as "quick return flow".*

Although the GWDR Draft Order stipulates that deep ripping of soils cannot be credited for a reduction in peak runoff, the process and fate of subsurface "pipe" or "quick return flow" is what is important here. Similar to the processes reported by Jackson, the RiverSmith findings indicate that significant volumes of infiltrated water actually resurfaces shortly after infiltration and contribute to surface runoff. These examples demonstrate that the assumption that increased infiltration rates reduce runoff is

[1] RiverSmith Engineering, 2013, Hydrologic analysis of proposed vineyard blocks within the Walt Ranch Property, Napa County, California. Prepared for: PPI Engineering, March, 130p.

unjustified and certainly should not serve as the sole Performance Standard associated with the GWDR Order runoff BMP Effectiveness Monitoring.

Please feel free to contact me with any questions regarding the material and conclusions contained in this letter report.

Sincerely,

Greg Kamman, PG, CHG
Principal Hydrologist

Additional attachments found in this comment letter are listed below, and can be reviewed at the following link:

http://www.swrcb.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/vineyard/Comment_Letters_2016/CommentLetter%20No.%207%20Living%20Rivers%20Council.pdf

Attachment A:	Landslide Hazard Assessment
	Walt Ranch Erosion Control Plan
Attachment B:	Review of Draft EIR
Attachment C:	Napa River Sediment TMDL Vineyard Waiver and ISMND

DOWNEYBRAND

Melissa A. Thorme
mthorme@downeybrand.com
916.520.5376 Direct
916.520.5776 Fax

Downey Brand LLP
621 Capitol Mall, 18th Floor
Sacramento, CA 95814
916.444.1000 Main
downeybrand.com

Letter 8

September 14, 2016

VIA EMAIL: mnapolitano@waterboards.ca.gov

Mike Napolitano
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, 14th Floor
Oakland, CA 94612

Dear Mr. Napolitano:

River Run Vineyards and Bean Family Vineyards (collectively, "Vineyards") appreciate the opportunity to submit the following comment s on the Draft Environmental Impact Report ("DEIR") prepared by the San Francisco Bay Regional Water Quality Control Board ("Regional Board") for the Regional Board's General Waste Discharge Requirements for Vineyard Properties Located in the Napa River and Sonoma Creek Watersheds ("Vineyard WDRs") pursuant to the California Environmental Quality Act ("CEQA"). 8-1

Project Description

The Project Description is Inadequate

The DEIR's description of the project lists numerous reasonably foreseeable compliance actions anticipated to be carried out as a result of the project. The DEIR does not, however, provide the contextual information necessary to inform the readers of the actual scope of the project and its environmental impacts. In order to adequately evaluate the impacts of the project, the analysis must disclose and evaluate the scale and extent of the stated physical changes likely to result from the proposed Vineyard WDRs. (See, e.g., CEQA Guidelines Sections 15378(a), 15064(b), and 15063). For example, the DEIR identifies installation of engineered subsurface drainage pipes as a likely compliance action. (DEIR, p. 55.) The DEIR also indicates that many vineyards already use subsurface drainage pipes to control erosion. But without further quantification or explanation (such as setting forth the actual number of vineyard properties that currently use such drains compared to the number of vineyards that may install such drains as a result of the project), the reader can only guess to what extent installation of new subsurface pipes will actually occur. Accordingly, no grounds exist upon which any conclusions regarding the impacts of this anticipated compliance action can be drawn. 8-2

A CEQA lead agency must "use its best efforts to find out and disclose all that it reasonably can" regarding a project's impacts. (Guidelines, § 15144.) The DEIR cannot serve as a meaningful informational document without informing the public of the extent to which the various

foreseeable activities that will occur as a result of the project will be carried out. Absent such information, the DEIR's analysis of the impacts of the project is a mass of speculation that cannot inform the public, the Regional Board, or anyone else of the environmental consequences of approving the project. This problem is compounded when paired with the other informational deficiencies of the DEIR described herein. These flaws permeate the entire DEIR. 8-2 cont.

Timing of Compliance Work

The various temporal limitations on compliance activities found throughout the DEIR could concentrate such work into a short window of time that corresponds to the wine grape harvest, yet this result and the attendant environmental consequences are not addressed in the description of the project or in the environmental analysis. As a result of the incomplete, and thus inaccurate, description of the project, the DEIR's analysis of the project's environmental impacts is not based on substantial evidence.

The standard work window for compliance actions under the Vineyard WDRs is June 15 to October 15. (DEIR, p. 189.) But construction within 75 feet of established riparian vegetation is to be avoided during the period of February 15 to August 15. (*Ibid.*) This means that any construction activities occurring within 75 feet of established riparian vegetation will typically take place during the period of August 15 to October 15, and the impacts of such work will be concentrated accordingly. The DEIR's analysis of the project's impacts does not acknowledge this small work window and thus does not address the consequences of condensing certain compliance activities into an eight-week period that also corresponds with the wine grape harvest season, when vineyard activities (and their consequent effects) peak. 8-3

The concentration of work during the harvest period has implications for potential impacts to air quality, biological resources, water quality, and population/growth inducement, but the DEIR does not acknowledge or analyze this issue, and thus does not fulfill CEQA's purpose of informing decision-makers and the public of the environmental consequences of the proposed Vineyard WDRs.

Description of Economic Characteristics

While Chapter 2.4 of the DEIR notes that CEQA requires a general description of the project's technical, economic, and environmental characteristics (DEIR, p. 53), that chapter includes virtually no economic information. Economic information is particularly necessary for this EIR, because potential conversion of farmland due to the project's economic consequences has already been flagged for the Regional Board as a matter of considerable local concern. In other words, this case presents a situation in which the economic effects of the project could foreseeably result in environmental consequences, and so analysis of the economic effects is necessary for a complete environmental review of the Vineyard WDRs. 8-4

The EIR does provide a summary of economic considerations in Chapter 3.3, but the summary is both too conclusory and too thin to provide a basis for analysis of environmental impacts driven by financial concerns. (*Laurel Heights Improvement Ass'n v. Regents of the University of California* (1988) 47 Cal.3d 376, 404 [Conclusory comments in support of environmental conclusions are generally inappropriate].) For example, the DEIR sets forth the baseless assumption that because some vineyards have been able to implement BMPs, it should not be an economic burden for the vineyards that have not yet implemented BMPs to do so. (DEIR, p. 87.) But this ignores the possibility that it is the very economic burdens of implementing BMPs that have prevented some vineyards from doing so. The DEIR's complete disregard for this possibility is especially egregious in light of the comments regarding costs the Regional Board has already received. (E.g., DEIR, p. 86.)

8-4 cont.

Description of the Baseline/Environmental Setting

The DEIR indicates that the primary purpose of the Vineyard WDRs is to address regulatory gaps related to road-related erosion and storm runoff increases from hillslope vineyards. (DEIR, pp. 37, 38.) But the DEIR does not set forth the information regarding the baseline conditions of roads and hillslope vineyards in the project area necessary for a meaningful environmental analysis. The DEIR must include baseline information, such as the estimated number and/or mileage of roads that will be affected by the project, the acreage of hillslope vineyards as compared to valley floor vineyards, and the scope and nature of existing vineyard operations. The DEIR must also explain why vineyard roads are different and more being more heavily scrutinized and regulated than other non-vineyard roads. Without this information, the DEIR cannot properly assess the potential impacts of the project, and thus cannot inform decision-makers or the public of the environmental consequences of approving the Vineyard WDRs.

8-5

Analysis of Impacts

Agriculture and Forestry Resources

The DEIR concludes that the project will have a less-than-significant impact with respect to conversion of farmland to non-agricultural uses. (DEIR, p. 111.) This conclusion is not supported by analysis or evidence. In general, it is clear that the loss of productive farmland could occur either directly or indirectly due to the compliance activities and practices growers must conduct in response to the conditions established by the proposed Vineyard WDRs. Given this impact to agriculture and agricultural lands, the DEIR should acknowledge that "the loss of productive farmland may occur due to increased regulatory costs and management practices growers must implement to comply with" the Vineyard WDRs and acknowledge that such impacts do not qualify as "less-than-significant." More specifically, the DEIR's conclusion that the BMPs listed in the DEIR are "compatible" with agricultural production (DEIR, p. 111) does not answer the question of whether the BMPs will result in the conversion of farmland. Taking lands currently in agricultural production and turning them into riparian lands, vegetative

8-6

setbacks, or buffers amounts to the conversion of farmland to non-agricultural use that should be analyzed in the DEIR.

The analysis of potential conversion of farmland due to the costs of compliance is also inadequate, and does not support the "less-than-significant" determination. It is not clear whether the analysis of the costs of compliance includes the costs various mitigation activities that landowners will need to implement. Even if those costs are included, the DEIR's determination that compliance activities do not pose an economic burden that could lead to conversion because some compliance activities yield long-term cost savings leaves open the possibility that the short-term capital costs of the compliance activities will drive growers out of business, and the DEIR does not address that possibility in any meaningful way. In addition, the DEIR fails to address local factors that could propel conversion of farmland, such as demand for additional housing. Without such information, the conclusion that financially burdened growers will simply sell their property to another grower cannot stand. 8-6 cont.

Air Quality, Biological Resources, and Hydrology/Water Quality

The flaws in the DEIR's description of the project and environmental baseline render the DEIR's analysis of impacts to air quality, biological resources, and hydrology and water quality inadequate. For example, because the DEIR does not directly acknowledge that compliance activities will be concentrated into a short period of time that overlaps with the wine grape harvest and crush, the DEIR fails to analyze the impacts of such concentration. In addition, the DEIR fails to recognize that the recommended regulation might not be needed if other regulated entities, such as some of the local wastewater treatment facilities, were required to comply with their wastewater discharge permits, which may be causing impacts worse than those presupposed from vineyards. 8-7

Cumulative Impacts

"Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past, current, and probable future projects. (CEQA Guidelines Section 15064(h)(1)). An impact may be individually limited, yet still be cumulatively considerable, and an agency may not rely on the fact that a particular project's impacts are small in comparison to a large environmental problem to find that no cumulative impact exists. (*Communities for a Better Environment v. California Resources Agency* (3rd Dist. 2002) 103 Cal. App. 4th 98, [agency may not employ a *de minimis* rationale when evaluating cumulative impacts].) 8-8

The analysis of cumulative impacts to agriculture and forestry resources is non-existent. (DEIR, p. 264 ["No analysis required" for cumulative impacts to agricultural resources.]) The apparent reason for this omission is the conclusion that local land use regulations protect agricultural lands. This conclusion is not adequate. The DEIR must examine whether the activities needed to comply with the Vineyard WDRs will, when added to existing and expected future regulations

on the same lands, will contribute to the conversion of farmland either by using farmland for compliance activities, such as constructing artificial wetlands, or by creating economic burdens that will drive wine grape growers out of business. 8-8 cont.

Growth Inducement

Section 11.1, "Growth Inducing Impacts," acknowledges that the Vineyard WDRs will have an effect on population growth and states, in a conclusory fashion with no reference to a threshold of significance, that this acknowledged impact will be "less than significant." The discussion of growth inducement must state a threshold of significance and explain why or why not the project meets that threshold. In the context of this project, and due to the concerns stated above regarding the temporal limitations on compliance activities, the analysis of growth inducement should include information specifically regarding the need for growth to accommodate additional workers when compliance work overlaps with the wine grape harvest. 8-9

General Comments

- There is a heading for Table 2-2 on page 51, but no table. 8-10
- We suggest adding "Groundwater Sustainability Agency approvals" to the list of potential agencies that may utilize the EIR. (DEIR, p. 82.)

Conclusion

The flaws identified above call for the DEIR to be revised to include an adequate, holistic description of the project and environmental baseline and an expanded analysis of the project's potential impacts. Then, the DEIR must be recirculated for additional public review. If the Regional Board refuses to recirculate the DEIR for additional review and comment, the Vineyards request an opportunity to comment on the Final EIR and a copy of the Regional Board's responses to these comments prior to the Regional Board's certification of the Final EIR. 8-11

Respectfully submitted,

Downey Brand LLP

Melissa Thorme

cc: Paul Pelosi, River Run Vineyards
James Bean, Bean Family Vineyards
Mark Neal, Jack Neal & Son Vineyard Management
Danyal Kasapligil, Dellavalle Laboratory, Inc.

A Tradition of Stewardship
A Commitment to Service

Planning, Building & Environmental Services

1195 Third Street, Suite 210
Napa, CA 94559
www.countyofnapa.org

David Morrison
Director

Letter 9

December 12, 2016

San Francisco Bay Regional Water Quality Control Board
C/o Mike Napolitano
1515 Clay Street, Suite 1400
Oakland, CA 94612

Re: Proposed General Waste Discharge Requirements for Vineyard Properties in the Napa River and Sonoma Creek watersheds

Dear Mr. Napolitano,

Napa County appreciates the opportunity to provide comments on the proposed General Waste Discharge Requirements for Vineyard Properties in the Napa River and Sonoma Creek watersheds. The County applauds your efforts to improve water quality and sediment reductions consistent with the sediment TMDL for the Napa River watershed. The focus of the County's letter is on the identification of potential inconsistencies between the County's existing regulatory framework for new and replanted vineyards and those proposed under the draft General Waste Discharge Requirements (WDR). 9-0

Existing Regulatory Framework

In 1991, the County adopted the Conservation Regulations which include many of the requirements proposed under the WDR. For example, the Conservation Regulations provide for stream setbacks, limit development on steep slopes, require engineered erosion control plans for new and replanted vineyards on slopes greater than 5 percent and provide for increased water quality protections within the County municipal watersheds, just to name a few.

In addition, County review and approval of erosion control plans are a discretionary act under the California Environmental Quality Act (CEQA), which obligates the County to disclose to the public the significant environmental effects of a new vineyard. A wide range of natural resources are considered and analyzed including (but not limited to) water quality, soil erosion, biology, archaeology, traffic, and air quality.

In 2008, the County updated its General Plan to include several goals and policies providing additional protections to water quality, biological resources, among others. Acknowledging the state's regulatory focus on sediment in the Napa River, the County specifically added policies focused on

controlling erosion, improving water quality, and encouraging ecological stewardship. In particular, General Plan policies CON-48 and -50 require projects to be designed to maintain pre-development sediment erosion conditions and to ensure peak runoff is not greater than predevelopment conditions.

The County's Conservation Regulations in combination with its General Plan goals and policies and the discretionary CEQA process required for ECPAs represents the County's robust regulatory framework that has been applied to new and replanted vineyards for over 25 years.

After careful review of the proposed WDR, inconsistencies between the County's requirements and the proposed WDR were identified. The following are a few examples:

Stream Setbacks

Napa County Code defines streams and provides setbacks for land clearing for agricultural development. Under Section 18.108.030, a "stream" means any of the following:

1. A watercourse designated by a solid line or dash and three dots symbol on the largest scale of the United State Geological Survey maps most recently published, or any replacement to that symbol;
2. Any watercourse which has a well-defined channel with a depth greater than four feet and banks steeper than 3:1 (horizontal to vertical bank ratio) and contains hydrophilic (i.e., water-adapted) vegetation, riparian vegetation or woody vegetation including tree species greater than ten feet in height; or
3. Those watercourses listed in Resolution No. 94-19 and incorporated herein by reference.

Napa County Code 18.108.025 applies setbacks for agricultural development adjacent to streams. Setbacks included in the Code range from **35 to 150 feet** measured from the top of bank and increase with the slope of the terrain perpendicular to the top of bank.

Slope (Percent)	Required Setback
< 1	35 feet
1 -5	45 feet
5 - 15	55 feet
15 - 30	65 feet
30 - 40	85 feet
40 - 50	105 feet
50 -60	125 feet
60 -70	150 feet

9-1

The proposed WDR include the establishment and maintenance of stream setbacks, as measured from the top of bank, along all unconfined alluvial channels that are on average ≥ 1.5 time the bankfull width (unless a given property has participated in a reach-based habitat enhancement project). However, it is unclear how the application of the WDR setbacks would interplay with the County's setback requirements.

Grading Deadline (Winter Shutdown)

The County's Conservation Regulations limit grading and earthmoving activities on slopes greater than five percent to the period between April 1 and October 15 or April 1 to September 1 for work on any slopes within sensitive domestic water supply drainages. In addition to the limitations on grading during the above period, all temporary and/or permanent BMPs and structural facilities contained in the approved erosion control plan are required to be installed by the winter shutdown period of September 15 (for sensitive domestic water supply drainages[1]) and October 15th elsewhere within the County.

It is unclear if any similar limitations to grading and earthmoving activities from a timing perspective are proposed as part of the draft WDR, or if your program will specify the timing of when temporary and/or permanent BMPs and structural facilities are required to be installed and functioning prior to winter rains. 9-1 cont.

Sensitive Domestic Water Supply Drainage Requirements

For new and replanted vineyard projects in sensitive domestic water supply drainages, concentration of runoff shall, wherever feasible, be avoided. Runoff shall instead be spread in small incremental doses into relatively flat buffer areas. Those drainage facilities and outfalls that unavoidably have to be installed shall be sized and designed to handle the runoff from **a one hundred-year storm event** without failure or unintentional bypassing. Outlets shall be protected against erosion in the one hundred-year storm event (see Section 18.108.027(D) of the Conservation Regulations).

Potential Conflict with Existing and Future County Erosion Control Plan Requirements

In addition to the inconsistencies outlined above, it is unclear how the draft WDR will interplay with the engineered design requirements and details of existing and future approved County erosion control plans relative to design requirements put forward by the draft WDR. Similarly, it is unclear how inconsistencies will be handled related to ongoing and future mitigation, monitoring and reporting efforts resulting from the County's CEQA review of approved vineyard erosion control plan projects. This is anticipated to potentially cause significant confusion on the part of the County and landowners and lead to difficulty navigating two overlapping processes.

Furthermore, while it is understood the formal comment period for the DEIR has closed, in the event components of the draft WDR modify the current regulatory framework in a manner that reduces protections to natural resources, the DEIR should evaluate any adverse environmental impacts that may occur as a result to changes in the regulatory framework. 9-2

While County staff has been closely involved with you and your staff during the development of the proposed WDR, we welcome the opportunity to continue to work with you to further our

[1] Sensitive domestic water supply drainages include the following drainages as depicted on the sensitive domestic water supply drainages map: 1) Kimball Reservoir drainage, 2) Rector Reservoir drainage, 3) Milliken Reservoir drainage, 4) Bell Canyon Reservoir drainage, 5) Lake Hennessey drainage including Friesen Lakes, 6) Lake Curry drainage, and 7) Lake Madigan drainage.

understanding of the intent and details of the draft WDR so that all potential inconsistencies can be identified and rectified.

Regards,

Brian Bordona
Supervising Planner

Cc: David Morrison, Director
James Ponton, Supervisor – San Francisco Bay RWQCB
Leigh Sharp, Executive Director – Napa County RCD

CALIFORNIA FARM BUREAU FEDERATION
OFFICE OF THE GENERAL COUNSEL
2300 RIVER PLAZA DRIVE, SACRAMENTO, CA 95833-3293 · PHONE (916) 561-5665 · FAX (916) 561-5691

Sent via E-Mail
mnapolitano@waterboards.ca.gov

Letter 10

December 12, 2016

Mike Napolitano
San Francisco Bay Water Quality Board
1515 Clay Street, 14th Floor
Oakland, CA 94612

Re: Comments on the Draft General WDRs for Vineyard Properties in the Napa River and Sonoma Creek Watersheds (Permit)

Dear Mr. Napolitano:

The California Farm Bureau Federation ("Farm Bureau") is a non-governmental, non-profit, voluntary membership California corporation whose purpose is to protect and promote agricultural interests throughout the state of California and to find solutions to the problems of the farm, the farm home, and the rural community. Farm Bureau is California's largest farm organization, comprised of 53 county Farm Bureaus currently representing more than 48,000 agricultural, associate, and collegiate members in 56 counties. Farm Bureau strives to protect and improve the ability of farmers and ranchers engaged in production agriculture to provide a reliable supply of food and fiber through responsible stewardship of California's resources.

Farm Bureau, on behalf of the Napa County Farm Bureau and the Sonoma County Farm Bureau, appreciates the opportunity to provide comments on the San Francisco Bay Regional Water Quality Control Board's ("Regional Board") development of General Waste Discharge Requirements for Vineyard Discharges in the Napa River and Sonoma Creek Watersheds ("Vineyard WDR"). Farm Bureau offers the following concerns and comments regarding the scope and content of the Vineyard WDR and associated Draft Environmental Impact Report ("Draft EIR"):

Porter-Cologne Requires Reasonable Regulation

In enacting the Porter-Cologne Water Quality Control Act, the Legislature laid out specific goals and objectives for the state's waters. The Regional Board must conform to all such statutory mandates, including the Legislature's objective:

> The Legislature further finds and declares that activities and factors which may affect the quality of the waters of the state shall be regulated to attain

> the highest water quality which is *reasonable*, *considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible*.

(Wat. Code, § 13000, emphasis added; see also *id*., § 13240 ["Each regional board shall formulate and adopt water quality control plans for all areas within the region. Such plans shall conform to the policies set forth in Chapter 1 (commencing with Section 13000) of this division and any state policy for water quality control."].) In its decision in *City of Burbank v. State Water Resources Control Bd.*, the California Supreme Court discussed the Legislature's intent, confirming its goal "to attain the highest water quality which is reasonable." (*City of Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613, 619.)

The use of the term "reasonable" and the "reasonableness" standard is not limited to the express goals laid out in Water Code section 13000. Rather, Porter-Cologne expressly calls for reasonable actions throughout. (See, e.g., Wat. Code, § 13241 [calling for water quality objectives that will provide "the reasonable protection of beneficial uses" upon mandated review of specific factors including economics], emphasis added; *id*., § 13050(h) [defines "water quality objectives" as "the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area." emphasis added]; *id*., § 13263 [requiring regional water boards to take into consideration "water quality objectives reasonably required" to protect beneficial uses as well as all provisions of section 13241 when prescribing discharge requirements]; *id*., § 13267(b)(1) [requiring technical or monitoring program reports for WDRs or conditional waivers to "bear a reasonable relationship to the need for the reports and the benefits to be obtained"].) Thus, when analyzing impacts to water quality and adopting waste discharge requirements, the Regional Board must comply and conform with Porter-Cologne's "reasonableness standard"; that is, evaluate if the activity or control limit will reasonably protect the beneficial uses. In order to comply with the reasonableness standard, the draft Vineyard WDR must be revised to consider "all demands being made and to be made on those waters and the total values involved," including both environmental and agricultural values, "beneficial and detrimental, economic and social, tangible and intangible." (Wat. Code, § 13000.) Specifically, the draft Vineyard WDR's definition of "vineyard property" is overly expansive in scope and burdensome, the Vineyard WDR duplicates or conflicts with current county regulations, does not properly analyze economic impacts on the agricultural industry, may lead to a disparate impact on small vineyard owners, does not properly analyze current data regarding farming practices and the health of the watershed, and appears to be drafted as if it is the only regulatory program to comply with the Sediment TMDL.

As provided herein, as well as in Farm Bureau's comment letter submitted on September 14, 2016, which are incorporated by reference, Farm Bureau's comments outline the necessary revisions and analysis that must be completed in order for the Vineyard WDR to conform to the Water Code and the California Environmental Quality Act ("CEQA").

The Draft Vineyard WDR Should Not Be Utilized as the Only Regulatory Program to Comply with the Sediment TMDL

The Draft Vineyard WDR states that it "implements the sediment Total Maximum Daily Loads (TMDLs) for the Napa River and Sonoma Creek Watersheds." (See General Waste Discharge Requirements for Vineyard Properties in the Napa River and Sonoma Creek Watersheds, Tentative Order No. R2-2016-XXXX, p. 4, ¶ 16 (hereinafter "Draft WDR").) The Draft Vineyard WDR further states: "These TMDLs include load allocations to sediment sources and implementation plans that call for the adoption of pollutant control programs to control sediment discharges from Vineyard Properties, and discharges from other significant land-use related sediment sources." (*Id*.) Notwithstanding the recognition that vineyard properties are not the only sediment source, it appears that the Draft Vineyard WDR will be utilized as the only regulatory program to comply with the Sediment TMDL and meet load allocations. In order to properly reflect the intent of the Sediment TMDL, the draft Vineyard WDR should be revised to reflect that it is not the only necessary pollutant control program and collectively, the programs will meet the load allocations.

The Draft Vineyard WDR Should Be Revised to Provide Flexibility and Feasibility Due to Diverse Regional Circumstances

In formulating regulations of waste discharges from irrigated lands, such as the Vineyard WDR, the Regional Board should seek to develop the most efficient and feasible program that accomplishes water quality goals. (Pub. Resources Code, § 21061.1.) Further, regulations must be feasible such that they are "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." (*Ibid.*) All components of feasibility, especially in terms of the regulation's impacts to agriculture, must be fully analyzed within the Regional Board's environmental analysis. As evidenced in the draft Vineyard WDR and associated Draft EIR, the feasibility and efficiency of the program is questionable.

Within the Napa River and Sonoma Creek watersheds, some tributaries contribute little to no sediment loads, warranting the need for localized regulatory adaptations of, or exemptions from, regulation under the Vineyard WDR. Given the diverse array of geography, topography, local conditions, sediment loading potential, and agricultural commodities grown in the Napa and Sonoma counties, the Vineyard WDR's management and monitoring requirements must be flexible and allow for necessary adaptations, both for localized areas and throughout the region. In order to recognize this diversity and allow for necessary flexibility, which in turn, will further the feasibility of the program, specific components of the Vineyard WDR need to be revised, such as performance standards, exemptions, and the definition of vineyard property.

The Scope of Vineyard WDR Should Be Focused on the Problem Areas Rather Than Applicable to all Properties Regardless of Water Quality Impacts

The Water Code and the Regional Board's Basin Plan provide authority for the Regional Board to impose regulations on dischargers to improve water quality. Farmers are equally concerned about water quality and the environment. However, there is no need for the Regional Board to impose arbitrary restrictions on commercial agriculture so long as farmers take necessary steps to demonstrate water quality improvement over a scientifically feasible timeline with intermediate milestones; available data shows that the agricultural community has taken and continues to take necessary steps to demonstrate water quality improvements. In order to continue to allow farmers to implement necessary steps, best management practices, and programs such as Napa Green, Fish Friendly Farming, and California Sustainable Winegrowing Alliance, the primary focus of maintaining and improving water quality *over time* should remain. To aid in reaching this goal, the Regional Board should evaluate recent water quality data and sediment data, and use such data to implement and adjust management practice implementation. Further, problem areas should be identified by reviewing the respective TMDL studies, in particular the Limiting Factor Analysis and Sediment Source Analysis reports, of both the Napa River and the Sonoma Creek watersheds, as well as more recent data that has been collected since the approval of the sediment TMDL. Guided by recent data, further collaboration between the Regional Board and agriculture can occur in order to develop a feasible and reasonable long-term solution.

In addition to reviewing applicable recent data to guide in crafting the proper scope of the program, the draft Vineyard WDR needs to be revised to appropriately regulate areas with the potential for water quality impacts, rather than all properties regardless of its impact potential. For example, as currently drafted, the Road Performance Standards cover the entire vineyard property, not just the vineyard facility. (See Draft WDR, p. 11; Draft WDR Attachment A, pp. 6-7.) The Performance Standards also cover all roads and do not prioritize the areas with high- and moderate-high- priority erosion sites, distance from surface waters, or parcel size or planted acres. As proposed, the Road Performance Standards are overly extensive and will be extremely expensive to implement. Given the concern about the financial hardship of meeting such an extensive regulation, as commented on previously by Farm Bureau and others, the Draft EIR should include the estimated cost per mile to assess and improve the road system to reduce road-related sediment delivery, and an analysis of the potential to achieve the target sediment reductions.

Further, in order to adequately capture applicable costs and associated impacts versus benefits, the Draft EIR should have included and fully analyzed alternatives for the Road Performance Standards, such as standards for 1) the entire vineyard property, 2) the vineyard facility, and 3) areas identified as high priority erosion areas. Without such an analysis within the Draft EIR, the Vineyard WDR cannot properly develop a vineyard regulatory program that complies with CEQA and the Water Code. (See 40 C.F.R. §§ 1500.2(e), 1501.2(c), 1502.1, 1502.14(a), 1502.15(d); Pub. Resources Code, §§ 21002,

21061.1, 21001.1(a), 21100(b)(4), 21150; Cal. Code Regs., tit. 14, §§ 15126.6(b), emphasis added, 15364, [The Regional Board shall identify and rigorously examine all reasonable alternatives for the project. The range of alternatives must be feasible and must avoid or substantially lessen the project's significant environmental effects "even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly." A feasible alternative is one that is "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."].)

Therefore, prior to adoption of the Vineyard WDR and Draft EIR, the Draft EIR must be revised to include additional analysis regarding Road Performance Standards, and the Vineyard WDR must be revised to focus on problem areas rather than all properties regardless of the potential to impact water quality. Such analysis is necessary to properly shape the requirements within the Vineyard WDR as different performance standards, scope of coverage, and definitions of a "vineyard property" may be found to more fully comply with the mandates of the Water Code and CEQA.

The Vineyard WDR's Scope of Coverage is Overly Expansive and Excessive

1. The Definition of Vineyard Property Is Overly Broad

The Vineyard WDR defines "vineyard property" as the vineyard facility and all adjacent owned parcels and roads. In other words, "vineyard properties" regulated under the Vineyard WDR includes the "entire parcel or contiguous parcels under the same ownership, where grapevines are planted on part of the property." (Draft WDR, p. 1, ¶ 2.) This definition would include portions of properties that meet the definition of "Rural Lands" as defined in the Basin Plan, which includes non-farmed and non-grazing portions of parcels. (Regional Board Resolution No. R2-2009-0064, Exhibit A-Basin Plan Amendment to Establish a Total Maximum Daily Load for Sediment in the Napa River and an Implementation Plan to Achieve the TMDL and Related Habitat Enhancement Goals, p. 12, Table 4.3, ft. 3.) In order to avoid inconsistent regulations, non-farmed and non-grazed lands should be regulated as Rural Lands and not as "vineyard properties."

By defining "vineyard property" in such an expansive manner, the Vineyard WDR appears to be excessive for the goals and project objectives the regulation is trying to achieve, and is one of the factors that could lead to high costs in complying with the WDR; high costs of compliance may be prohibitive for growers, such as small vineyards owners, resulting in the conversion of agricultural lands to non-agricultural lands. Additionally, by defining the entire property to encompass vineyard and non-vineyard areas, the cost of compliance for some vineyards will be overly burdensome due to hiring consultants to aid in developing a Farm Plan, implementing BMPs to attain performance standards, conducting hydrologic modeling, and reporting requirements. These burdens may outweigh the benefit of water quality (as Wat. Code, § 13267(b)(1) cautions against [requiring technical or monitoring program reports for WDRs to "bear a reasonable relationship to the need for the reports and the benefits to be obtained]) as such regulations do not provide for "the

reasonable protection of beneficial uses" upon mandated review of specific factors including economics. (*Id*., § 13050(h), emphasis added; see also *id*., § 13000 [activities that can affect the waters of the state, such as vineyards, "shall be regulated to attain the highest water quality which is *reasonable, considering all demands being made and to be made on those waters* and the total values involved, beneficial and detrimental, *economic* and social, tangible and intangible."] Emphasis added.)

2. The Draft EIR Fails to Analyze Viable Alternatives Such as the 2012 Vineyard Acreage Thresholds and the 2014 Flat Land Exemption

The draft 2012 Conditional Waiver for discharges from vineyard properties in the Napa River and Sonoma Creek Watersheds covered the following vineyards:

> 1. Contains a **Vineyard Facility** with a **Slope** less than 5 percent located on one or more parcels totaling 40 acres or more, where 5 or more acres are a planted vineyard; or
> 2. Contains a **Vineyard Facility** with a **Slope** of 5 percent or greater located on one or more parcels totaling 20 acres or more, where 5 or more acres are a planted vineyard; or
> 3. Is identified by Water Board staff as discharging or proposing to discharge waste that could affect water quality and the Water Board staff finds that regulation of such vineyard through this Conditional Waiver will result in compliance with applicable water quality standards, such that regulation through individual or general WDRs is not necessary.

10-1

(Conditional Waiver of Waste Discharge Requirements For Discharges From Vineyard Properties in the Napa River and Sonoma Creek Watersheds, Tentative Order 2012-XXX, p. 2) The Technical Advisory Committee concluded that the eligibility criteria "captures an estimated 85 percent of vineyard parcels and cultivated acres in the Napa River and Sonoma Creek watersheds and takes into consideration parcel size, vineyard size, slope, geology, and soil erosion potential." (*Id*., p. 6.) Given the Technical Advisory Committee's conclusions, the 2012 Conditional Waiver eligibility criteria is a viable alternative that captures the goals of the Vineyard WDR and should have been analyzed in the Draft EIR. Unfortunately, neither the Draft EIR nor the Draft Vineyard WDR adequately explains why the 2012 eligibility criteria is no longer valid or appropriate to regulate sediment discharges from vineyard property.

Further, as analyzed in the 2014 Initial Study for General Waste Discharge Requirements for Vineyard Discharge in the Napa River and Sonoma Creek watersheds, flat lands (slopes less than five percent) with established stream setbacks and no erosion were exempted from regulation under the Vineyard WDR. (2014 Initial Study, p. 4, Table 1.) However, the eligibility, exclusion, and exemption criteria analyzed in the Draft EIR do not include this provision and no information is provided as to why it no longer exists. (Draft EIR, p. 49, Table 2-1.)

By not fully analyzing viable alternatives, the Draft EIR is faulty and cannot properly inform or support the conclusions within the Vineyard WDR. Therefore, the Draft EIR should fully consider and analyze the eligibility criteria from the 2012 Conditional Waiver as an alternative, as well as the flat land exemption, and the Vineyard WDR should be revised accordingly. Additionally, the Vineyard WDR should also be revised to include a limited definition of vineyard properties. 10-1 cont.

The Draft EIR Fails to Consider Significance of Social and Economic Impacts and Cumulative Effects

Although impacts that are solely economic in nature do not constitute "significant effects on the environment," economic or social impacts that will or have the potential to cause a physical change should be considered. (Cal. Code Regs., tit. 14, §§ 15064(e), 15131, 15382.) The term "significant effect on the environment" is defined in Section 21068 of CEQA as meaning "a substantial or potentially substantial adverse change in the environment." (Pub. Resources Code, § 21068.) This focus on physical changes is further reinforced by sections 21100 and 21151. (See discussion following Cal. Code Regs., tit. 14, § 15131.) Despite the implication of these sections, CEQA does not focus exclusively on physical changes, and it is not exclusively physical in concern. (*Ibid*.) Thus, in certain situations such as the adoption of an expansive regulatory irrigated lands discharge program, economic and social effects of the project must be used to determine the significant effects on the environment. (*Citizens Assn. for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151, 170, ["The lead agency shall consider the secondary or indirect environmental consequences of economic and social changes."].) 10-2

A cumulative effect of environmental regulations can be the loss of some farmland either by regulatory restrictions or by the compliance cost burden casualty. The loss of farmland is unquestionably an environmental impact, although its magnitude may be hard to predict.[1] (Discussion following Cal. Code Regs., tit. 14, § 15131.) The Draft EIR should, in the very least, estimate the percentage of the potentially productive land barred from cultivation and the dollar value of the vineyard owners' or operators' cost for the WDRs compliance. Such figures, when added to those from other regulations, will give the public a proper scope of potential and cumulative impacts and an initial estimate of the amount of farmland that would be lost.

Anticipated program implementation costs to the agricultural community include, but are not limited to, increases in potential fees, management practice implementation, monitoring costs, report preparation, and cost for education, preparation of Farm Water

[1] Section 3.3 of the Draft EIR discusses these cost concerns obliquely and reiterates that economics cannot be permitted to bear as heavily on CEQA determinations as physical environmental effects. However, in the agricultural industry concerns about economics are often inextricably linked to concerns about being unable to afford to maintain the farmland, leading to its ultimate conversion to non-farmland, thus warranting an extensive environmental review analysis.

Quality Protection Plans,[2] road improvements[3] and erosion control, as well as other costs. Given that the impacts of water quality regulations frequently take years to materialize, the Draft EIR should be revised to analyze the economic costs and impacts within a dynamic framework taking into account the projected changes in the economic situation *over time*. Reliance on outdated economic figures and unsupported assumptions do not meet the requirements of the Water Code or CEQA, and proper information needs to be included as part of the decision making process.

10-2 cont.

Need for Current Data

The Draft Vineyard WDR appears to rely upon outdated sources of sediment discharge as the underlying reason necessitating regulatory requirements for vineyards and associated parcels. Although the Draft EIR provides a general description of some of the voluntary farm water quality protection programs that growers have implemented at a large scale, the successes of these programs do not seem to have been utilized when crafting the Draft Vineyard WDR. (See Draft EIR, pp. 38-39.) By relying upon outdated data, the entire premise of the Draft Vineyard WDR ignores more recent and applicable data, which have improved baseline conditions through the ongoing use of environmentally friendly best management practices and stewardship practices. (See Draft EIR, pp. 38-39 (description of some of the stewardship programs currently utilized by growers].) Farm Bureau respectfully requests that the Vineyard WDR utilize the most recent data.

Conclusion

Thank you for the opportunity to provide our comments. Farm Bureau looks forward to further involvement and discussion with the Regional Board on addressing waste discharges from vineyard properties in the Napa River and Sonoma Creek watersheds.

Very truly yours,

Kari E. Fisher
Associate Counsel

KEF

---

[2] The Vineyard WDR would require dischargers to prepare a Farm Water Quality Protection Plan for (at a minimum) all vineyard blocks, lanes, and avenues. This document has many components and requirements, which will be highly time and cost intensive for farmers to prepare.

[3] The Vineyard WDR mandates making significant changes to the current road situation in the project region; the current roads running through these vineyards are largely "farm roads," which are unpaved. To alter these roads would be very time and cost intensive to the vineyard owners.

III. COMMENTS AND RESPONSES

Written responses to each comment letter received on the draft EIR (or DEIR) are provided in this chapter. Each letter, in its entirety, is provided in Chapter II. In this chapter, we provide excerpts and summaries of the comments received, each numbered and keyed to the respective comment letter. The responses below maintain the order of comment letters listed in Section II, above.

If the subject matter of one letter overlaps with that of another letter, the reader may be referred to more than one group of comments and responses, in order to review all information on a given subject. Where this occurs, cross-references are provided.

Comment Letter #1
Coalition of Agricultural Organizations
September 14, 2016

Comment 1-1: Our organizations recognize that maintaining a healthy functioning watershed is essential to protecting agriculture, our livelihoods and a healthy ecosystem. However, we have concerns with the DEIR's lack of analysis of various impacts that the General WDRs will have on the environment, and with the DEIR's inadequate alternatives analysis.

Response to Comment 1-1: Your ethos and general concerns are noted. Responses to specific comments are below.

Comment 1-2: "Policy Context of the Project: CEQA requires that the EIR identify the policy and planning context in which the project is proposed. Here, the planning context is clear: the Porter-Cologne Water Quality Control Act requires that "prior to implementation of any agricultural water quality control program, an estimate of the total cost of the program, together with an identification of potential sources of financing, shall be indicated." (Cal. Wat. Code § 13141.) More generally, any Water Board adoption of water quality requirements "shall take into consideration" "economic considerations." (Cal. Wat. Code § 13241, 13263.) Although CEQA does not require analysis of economic impacts …, CEQA's requirement for identification of the policy and planning context mandates that the DEIR should reflect that consideration of economic impacts is required under Water Code sections 13141, 13241 and 13263. …." … The consideration of economic impacts should include examination of broader economic impacts on property owners and financing sources that could assist property owners in complying, but the DEIR's discussion of economic impacts pertaining only to the conversion of vineyard land into other land uses.

Response to Comment 1-2: The comment is entitled "Policy Context of the Project," but the substance of the comment recites numerous provisions of the Water Code pertaining to consideration of economic factors (Water Code §§ 13141, 13241, 13263) and contends that the DEIR should also reflect consideration of economic impacts.

Without getting into a detailed discussion concerning the numerous provisions the commenter cites and the extensive case law construing each, we note that section 13241 refers to the establishment of water quality objectives in a Water Quality Control Plan. Adoption of the General Permit is not adoption of a Water Quality Control Plan or Policy contemplated by Water Code section 13245. We further note that the General Permit proposes requirements that will implement the relevant Water Quality Control Plan (San Francisco Bay Region Basin Plan) as required by section 13263, and staff has considered the economic impacts of the General Permit, consistent with section 13241. We agree

with the commenter that CEQA does not require an evaluation of economic impacts, but the DEIR has considered the potential for environmental impacts related to social and economic impacts, consistent with CEQA Guideline 15131.

Staff has met with the stakeholders to discuss a wide range of issues including potential economic impacts and grant opportunities (e.g., meetings with the Conservation Committee of the Napa County Farm Bureau on 6/1/16, 9/7/16, and 11/2/16; a Town Hall meeting in the City of Napa to discuss the permit and answer questions on 7/26/16; meeting with the directors and staff of the Napa County RCD on 10/24/16; and in meetings with your coalition on 10/28/16 and 11/14/16).

Economics is one of a great many factors that are routinely considered in adopting WDRs and has been extensively considered in this case. (Water Code § 13263.) In pertinent part, to estimate and consider potential costs, Water Board staff has:

a) Interviewed technical staff at the California Land Stewardship Institute, who have prepared about 500 farm plans for vineyard properties located in the Project Area, to estimate typical cost ranges for preparation of farm plans in order to comply with the General Permit (L. Marcus, 2017, personal communication);

b) Interviewed technical staff at the Napa County RCD and Pacific Watershed Associates, who have extensive experience and expertise in road-erosion control projects to estimate average costs per mile in order to comply with the General Permit's performance standards for road-erosion control (see for example, B. Burmingham, 2015, personal communication);

c) In estimating agricultural water quality program costs as part of the development of the Napa River watershed sediment TMDL, Water Board staff interviewed staff at Prunuske Chatham and Associates to estimate a typical range for the costs of soil bioengineering techniques to control gully and/or channel erosion associated with concentrated runoff from hillslope vineyards (S. Chatham, personal communication, 2005), and these cost estimated were adjusted to reflect the effects of subsequent inflation;

d) Reviewed cost estimates for streambed monitoring (Napa RCD, unpublished data, 2016), which would be the primary focus of the monitoring program required under the General Permit; and

e) Reviewed the State Water Board's Agricultural Lands Fee Schedules and cost estimates for monitoring programs to comply with irrigated agricultural permits issued by other regional water boards.

The DEIR summarizes the extensive body of research staff has developed and concludes that no environmental impacts will occur as a result of the economic impact of complying with the General Permit (DEIR, pp. 86-88). Please also see our Response to Comment 8-4, where we provide further clarification to support the finding in the DEIR that it is highly unlikely that the General Permit would render a Vineyard Property economically nonviable and also where we summarize subsequent revisions to the General Permit that further reduce the potential for economic hardship. No evidence has been presented to the contrary by this or any other commenter.

Comment 1-3:

"GIS Analysis of Best Management Practice Impacts … is based on GIS analysis that "estimates planted vineyard and total property acreage … enrolled in the proposed General Permit … In addition to containing significant data gaps, this analysis fails to account for impacts associated with lands contiguous to vineyard parcels that are under the same ownership. These lands are currently within the scope of … the General WDRs. Accordingly, the DEIR has failed to analyze any impacts of including these non-vineyard properties … under the General WDR. In addition to other significant data gaps, the GIS analysis of roads only included parcels with vineyard plantings … It does not include any data about roads on parcels contiguous to vineyard parcels, which would be subject to the General WDR if under the same ownership as the vineyard parcel … Failing to include these parcels … creates an inaccurate portrayal of the General WDRs' impacts on road construction, air quality, and biological resources. Additionally … the DEIR's analysis of the impacts based on the GIS data and estimates in Appendix B grossly underestimates the scale of the work that landowners must undertake and the economic impacts on property owners if the General WDRs are adopted as currently drafted. In order to address this issue, the General WDRs should be revised to apply only to those parcels containing greater than five acres of vineyard, because the GIS data considered in the EIR accurately reflects these lands. Alternatively, the DEIR should be revised with additional data on contiguous parcels to better represent the true scope of impacts …"

Response to Comment 1-3:

Please note we did in fact account for contiguous parcels under the same ownership in estimating total Vineyard Property acreage that would be enrolled in the General Permit. Specifically, the GIS analysis for the Napa River watershed involved overlap of the Napa County Agriculture Layer (2010 update), which defines land areas (polygons) planted in vineyard based on interpretation of 1:2400 scale aerial photographs, which were used to identify and delineate vineyard boundaries. Then, for the planted vineyards, we determined ownership of the underlying parcels by review/query of the Napa County Accessors Parcel Layer. Where contiguous parcels were under the same ownership, these parcels were then delineated together with the parcels underlying mapped vineyards to define individual vineyard properties.

Because we were not able to locate existing GIS layers that mapped vineyard boundaries in the Sonoma Creek watershed, for that part of the project area, as stated in Appendix B of the draft EIR, we did the following:

> "Lacking additional GIS data, we assume that the Napa ratios for property acreage to planted acreage, and also hillslope vineyard acreage to valley floor vineyard acreage, also can be used to approximately characterize these same attributes in the Sonoma Creek watershed."

To clarify, Appendix B is revised as shown in the underlined text below:

"Appendix B: GIS analysis to support evaluation of potential impacts

Our analysis was structured as follows.

1. For vineyard properties in the Napa River watershed, **we located available GIS data to estimate total vineyard property acreage and also planted acreage on hillslopes (>5 percent) and valley floor sites (≤ 5 percent)**. Specifically, the GIS analysis for the Napa River watershed involved overlap of the Napa County Agriculture Layer (2010 update), which defines land areas (polygons) planted in vineyard based on interpretation of 1:2400 scale aerial photographs, which were used to identify and delineate vineyard boundaries. Then, for the planted vineyards we determined ownership of the underlying parcels by review/query of the Napa County Accessors Parcel Layer. Where contiguous parcels were under the same ownership, these parcels were then delineated together with the parcels underlying mapped vineyards to define individual vineyard properties. For vineyard properties in the Sonoma Creek watershed, we could only locate available GIS data to estimate the total acreage of vineyard properties (available layers, with metadata, do not delineate the planted area separately). **Lacking additional GIS data, we assume that the Napa ratios** for property acreage to planted acreage, and also hillslope vineyard acreage to valley floor vineyard acreage, **also can be used to** approximately **characterize these same attributes in the Sonoma Creek watershed**."

Please also note, however, that the commenter's recommendation has been adopted and the above concerns are now irrelevant because the definition of a "Vineyard Property" that would be regulated under the General Permit has been revised to only pertain to parcels where a 5-acre or larger vineyard is planted. This edit to the General Permit will result in a smaller geographical footprint of regulated parcels. As a result, we

anticipate that environmental effects will remain the same (if an impact was previously described as significant, it remains so; if an impact was described as less-than-significant, likewise there is no change). The cumulative impacts of the project will be reduced as a result of the smaller project footprint. For these reasons, we have not changed the impact analysis of the DEIR.

Comment 1-4:

The DEIR concludes that there are no impacts to agricultural resources or that they are "less than-significant" because land is not converted from agricultural uses to non-agricultural uses. (DEIR, p. 111.) The DEIR concludes that the General WDRs will not convert any prime, unique, or statewide important farmland to non-agricultural use based on the fact that "BMPs that may be employed in farming areas…already have been implemented at many properties… and have been found to be compatible… and don't require a significant reduction in footprint of the farm and…BMPs that would be implemented on unpaved roads will result in an overall reduction in road maintenance costs." (DEIR, Table E-1, Impact 4.1.) This conclusion is erroneous, not supported by any evidence, and ignores the actual analysis required to be conducted under CEQA.

The DEIR must consider whether prime farmland, unique farmland, or farmland of statewide importance would be converted to a *non-agricultural use*. (Cal. Code Regs., tit. 14, § 15387, App. G.) First, the DEIR does not identify how many affected acres of land would be considered prime, unique, or of statewide importance. (See DEIR, p. 111.) This provides no context for the DEIR's discussion of impacts to these agricultural resources. Additionally, the DEIR only considers the total conversion of parcels into non-agricultural uses and ignores the fact that converting portions of parcels into riparian lands, vegetative setbacks, detention ponds, or buffers is the conversion of farmland to non-agricultural use. Because the General WDRs may require this kind of conversion, it must be disclosed and analyzed under CEQA.

It is irrelevant that other vineyards have already implemented some of the BMPs since those are part of the existing conditions, not project impacts. Although the historical trends cited in the DEIR indicate that farmland will not be converted to non-agricultural uses, those past trends cannot provide a reliable prediction of effects under the General WDRs, as the context is quite different: the "BMPs employed in farming areas" cited in the DEIR were voluntary; the BMPs to be employed under the General WDRs are not. It is entirely possible that the non-voluntary nature of BMPs to be employed under the General WDRs will result in more conversion of farmland to non-agricultural uses. Accordingly, the DEIR should analyze the impacts of future implementation of BMPs that could convert some farmland acreage into a non-agricultural use. Further, a reduction in road maintenance costs is also irrelevant to the conversion of agriculture to other uses, since

economic impacts are not impacts on the physical environment. (Cal. Code Regs., tit. 14, § 15131.) The General WDRs will result in the direct conversion of agricultural land to non-agricultural uses, and the scope and nature of these impacts should be disclosed and analyzed.

Response to Comment 1-4: First, we note that "a lead agency enjoys substantial discretion in its choice of methodology" for impact analyses (*Center for Biological Diversity v. California Dept. of Fish and Wildlife* (2015) 62 Cal.4th 204, 228), and, in this case, a qualitative approach to assessing farmland impacts was appropriate and sufficient for the reasons discussed below. Lead agencies are not required to conduct every study suggested by commenters. (Cal. Code Regs., tit. 14, § 15204 (a).) Although not described in detail in the DEIR, we considered, as a point of reference, that Sonoma County has 29,899 acres of Prime Farmland; 33,398 acres of Unique Farmland; and 17,203 acres of Farmland of Statewide Importance. Napa County as a whole has 30,655 acres of Prime Farmland; 16,312 acres of Unique Farmland; and 9,574 acres of Farmland of Statewide Significance.

The commenter's concern is inconsistent with the intended purpose of the CEQA Guidelines in requiring an evaluation of impacts to agriculture and forestry resources. The comment asserts that the proposed project would convert portions of parcels of farmland to non-agricultural uses through conversion to riparian lands, vegetative setbacks, detention ponds, or buffers. However, the focus of the State's Farmland Monitoring and Mapping Program used for CEQA analysis is to present data on how *urbanization* is converting entire parcels of farmland to non-agricultural uses,[1] not how individual landowners manage some land kept out of production to support continued agricultural use of farmland parcels. There is no evidence from this, or any other commenter, that the erosion control and other requirements of the General Permit will encourage urbanization or any other change in land use. Case law usage consistently reflects the usage of "conversion" in reference to urbanization. (See, e.g., *Citizens for Open Government v. City of Lodi* (2012) 205 Cal.App.4th 296, 321 [evaluating conversion of prime farmland to urban uses]; *Masonite Corporation v. County of Mendocino* (2013) 218 Cal.App.4th 230, 236 [discussing the indirect and cumulative effects of farmland conversion, focusing on "development pressure on agricultural lands"]; and *Cherry Valley Pass Acres and Neighbors v. City of Beaumont* (2010) 190 Cal.App.4th 316, 349 [purpose of the Williamson Act is to "encourage continuing agricultural production of viable farmlands, and prevent their premature conversion to urban uses"].) Without any such evidence, the commenter's concern is only speculation. (CEQA Guideline section 15064, subd. (f) ["Argument, speculation, unsubstantiated opinion or narrative … shall not constitute substantial evidence"].)

Furthermore, all of the BMPs in the General Permit are premised on the ethos that keeping soil in-place is essential to the long-term sustainability

[1] See, e.g., trends at http://www.conservation.ca.gov/dlrp/fmmp/trends/Pages/Index.aspx

and vitality of farmland, and thus BMPs used to control soil loss in vineyards would effectively serve to preserve farmland parcels. Also, any losses of farmland on individual parcels due to the proposed project's BMPs are likely to be insubstantial; e.g., a maximum of 2-to-3 percent of the planted vineyard area where forested hillslope areas were converted to vineyards (see DEIR, p. 65). Given the current economic climate, landowners are likely to decide to bring new, formerly unplanted areas under cultivation for economic reasons.[2] Due to the large number of parcels that would be regulated under the proposed project - in the Napa River watershed alone we estimate about 1700 parcels would be regulated (Lanborn, 2016, personal communication) - the variety of BMPs that might be employed on each parcel (see Section 2.5), and uncertainties about additional land that would be brought under cultivation, it would be speculative and infeasible to quantify losses of farmland on individual parcels that could be attributed to the proposed project.

The comment also asserts that "it is entirely possible" that the non-voluntary nature of the proposed project's BMPs will result in more conversion of farmland to non-agricultural uses. However, this assertion is speculative and not supported by substantial evidence. Please note that Water Board staff estimated that 75 percent-or-more of the Vineyard Property acreage that would be enrolled in the General Permit already has a completed Farm Plan that could be certified as-is (i.e., at all valley floor sites) and/or could be certified under the General Permit with minor addenda (e.g., at some hillslope sites) where additional actions would be needed to achieve road erosion control performance standards (as indicated in "Staff Report in Support of the April 12, 2017 Water Board Workshop," Water Board, 2017, p. 22).

Finally, to respond to the claim that the General Permit will lead to economic impacts, in response to comments on the draft General Permit, we made three changes to address concerns regarding potential for economic hardship, which include the following:

a) The Vineyard Property definition would only regulate parcels where a 5 acre-or-larger vineyard is planted (removing several parcels from regulation that contain unpaved roads, but no planted vineyard, and hence reducing road-erosion control costs);

b) We provide clarification that the road erosion control performance standards only apply to Hillslope Vineyard Properties; and

c) We added a finding to the General Permit to prioritize technical assistance and grants for certain limited resource farmers (as defined

[2] Within the project area, demand for vineyard land is very high as demonstrated by: a) Napa Valley vineyard land having the highest value per acre of any agricultural land in the United States (See, "Napa Ag Lands Remains the Most Expensive in US," Napa Valley Register, April 3, 2013); and b) in Sonoma County demand for premium vineyards will likely continue to drive up land values (see "Big Players Dominate Sonoma County Vineyard Holdings," Press Democrat, December 6., 2013).

by USDA) and also to provide these parties necessary flexibility to achieve compliance with the General Permit including through adjusted farm plan, monitoring, reporting, and/or time schedules for compliance.

(See also response to Comment 8-4.) These revisions to the General Permit would further reduce costs, and/or provide additional flexibility for limited resource farmers, which provide additional support for the conclusion in the DEIR that it is highly unlikely that the General Permit would render a Vineyard Property economically nonviable.

Comment 1-5:

"The DEIR concludes that there are no impacts to forest land or timberland resources because the General WDRs do not authorize discharges if BMP construction or activity would involve the conversion of forest lands (DEIR, Table E-1, Impacts 4.3, 4.4, and 4.5). However, this conclusion is not supported by substantial evidence or consistent with the language in the General WDR. In fact, the DEIR contains absolutely no analysis to support the conclusion that Impact 4.5 results in no impact. (See DEIR, Section 4.3.1, p. 113). In addition, the conclusions for these impacts all are premised on the fact that the General WDRs do not provide regulatory coverage for projects that involve the conversion of forestland or timberland. However, the definitions for timberland and forest land differ significantly, such that the assumption that the General WDRs will not affect forestland is unfounded.

… Although the DEIR assumes that no forest land will be impacted, the General WDRs do not expressly exclude projects that could involve conversion of forest lands (DEIR, pp. 49, 113). In fact, if all forest lands were excluded from the General Permit, it would most likely remove most if not all new vineyard projects from coverage, as well as many existing vineyards requiring native tree removal to implement BMPs or conduct road improvements. For this reason, the DEIR must be revised to analyze the impacts that the General WDRs will have on forest lands.

Additionally, the General WDRs only exclude those projects that convert timberland pursuant to a Timber Conversion Plan, which does not account for projects that would qualify for a less than three-acre timber conversion exemption. . . . The impacts associated with new vineyards using this exemption to convert timberland are not analyzed or discussed in the DEIR…. Accordingly, the DEIR conclusions regarding impacts to … forest lands and timberlands [are] inadequate. Additional analyses and information for these impacts is needed."

Response to Comment 1-5: The comment asserts that "no impact" conclusions for Impacts 4.3, 4.4, and 4.5 are not supported by substantial evidence. The comment further asserts that the draft EIR did not account for the different regulatory definitions of "forest land" and "timberland." In response, the final EIR has been corrected to change the impact conclusions for Impacts 4.3, 4.4, and 4.5 to "less than significant," provide additional substantial evidence to support these conclusions, and clearly distinguish impacts to "forest land" versus "timberland." These changes do not trigger draft EIR recirculation under CEQA Guideline 15088.5 because they do not disclose a new-or-substantially-more-severe significant environmental impact. Rather, they represent clarifications and amplifications of the information presented in the draft EIR.

The following corrections have been made to the draft EIR in Table E-1:

Chapter	Resource Category	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
4	**Agriculture and Forestry (cont.)**			
	Impact 4.3. Compliance with the General Permit would not conflict with existing zoning for, or cause, re-zoning of, forest land or timberland, or timberland zoned as Timberland Production. • ~~No authority to discharge under the General Permit would be allowed if BMP selection and construction results in a loss of forest land to non-forest use.~~ "Compliance actions under the General Permit would not conflict with existing zoning for, or cause rezoning of, parcels of forestland or timberland, or timberland zoned as Timberland Production. Also, coverage under the General Permit would not be allowed for any new Vineyard property where vineyard development involves a timber conversion plan or permit."	None required. ~~No impact.~~ Direct and indirect impacts are less than significant.	~~NI~~ LS	NA
	Impact 4.4. Compliance with the General Permit is not expected to result in ~~the~~ substantial loss of forest land or substantial conversion of forest land to non-forest use. ~~If compliance with the General Permit would involve conversion of forest lands, there is no authority to discharge under the General Permit.~~ Compliance actions that may be located in some cases outside of the footprint of vineyards or roads would convert less than 27 acres of forest land in the project area. This loss is not considered substantial when compared to the total acreage of forest land in the project area Counties, which is approximately 121,600 acres.	None required. ~~No impact.~~ Direct and indirect impacts are less than significant.	~~NI~~ LS	NA

	Impact 4.5. Compliance with the General Permit is not expected to 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. Compliance with the General Permit would not result in conversion of significant portions of farmland to non-agricultural use or conversion of forest land to non-forest use because a) no other aspects of General Permit implementation would indirectly result in conversion of forest land to non-forest use, ~~no authority to discharge under the General Permit would be granted if BMP selection and construction results in the loss of forest land or the conversion of forest land to non-forest use~~ and b) actions undertaken to comply with the General Permit (e.g., construction of sheds, pipes, trash racks, culvert replacement, road work, etc.), would be compatible with existing vineyard facility operations, throughout the Project Area.	None required. ~~No impact.~~ Direct and indirect impacts are less than significant.	~~NI~~ LS	NA

The draft EIR has been revised to make the following corrections to the analysis of Impacts 4.3, 4.4, and 4.5:

Impact 4.3: Compliance with the General Permit would not conflict with existing zoning for or cause rezoning of forest land, timberland, or timberland zoned timberland production.
In almost all cases, BMP implementation and maintenance would occur within the footprint of the vineyard and/or property-wide roads. Should a Discharger in order to comply with the General Permit, choose to locate and construct a sediment basin, wetland, and/or level spreader, or any other BMP in an adjacent, undeveloped area, if such action requires conversion of timberlands, no authority to discharge under the General Permit is allowed. In that situation, the discharger would either need to relocate the feature (e.g., basin, wetland, and/or level spreader) onto the vineyard proper to avoid the timberlands, or obtain coverage under individual waste discharge requirements from the Water Board. Therefore, implementation of BMPs in compliance with the General Permit would not require a change in existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production.

Also, there are 89,700 acres of forest lands in the Napa River watershed (Jones and Stokes Associates, 2005), corresponding to 33 percent of total land area. ABAG (2000) delineated 30 percent of the Sonoma Creek watershed in forest cover, or approximately 31,900 acres. Therefore, we estimate there are approximately 121,600 acres of forest lands in the project area.

Because almost all compliance actions (e.g., BMPs 1-8, 13-19, and 21-26, see Section 2.5) would be located in the footprint of existing vineyards or unpaved roads, and/or the footprint of new/proposed vineyards or roads approved by the local land-use authority, only a small number of acres of forest land could potentially be impacted by the project. Also, in some cases, reasonably foreseeable compliance actions would have a neutral or beneficial effect on forest land acreage including BMPs 11-12 (soil bioengineering projects) because these actions would increase tree cover along eroding gullies and stream channels, and/or revegetate bare landslide scars.

The only reasonably foreseeable compliance actions, that (in some cases) could reduce forest lands, would be BMP-10, a stormwater detention basin or constructed wetland, and/or BMP-20, construction of a new storm-proofed road to replace an existing problem road. In evaluating the potential for these actions to impact forest lands, we considered the following:

a) At ≤10 percent of hillslope vineyards[3] (corresponding

[3] Detention basins could be required to achieve performance standards for storm runoff where hillslope vineyard development involved conversion of forests or wetlands. We estimate about 2000-of-18000 acres of existing hillslope vineyards that could be enrolled in the General Permit may have involved conversion of forested or wetland areas, and 500-of-8000 acres of projected future hillslope vineyard development that could occur within the next 20-years, may involve conversion of forest or wetland areas (Napolitano, 2016). 2500-of-26,000 acres equals about 10 percent. However, it is likely that the actual area where detention basins would be constructed will be lower because, since 2009, Napa County has required no-net increase in storm runoff as a

to 2500 acres), detention basins could be constructed. Detention basins typically require an area equal to about 2-to-3% of area they receive runoff from (USEPA, 2014). Under the worst case scenario, 3 percent (e.g., the footprint of the basin/constructed wetland) of 2500 acres of hillslope vineyards **would correspond to a maximum disturbed area of 75 acres**.

b) At a small percentage of vineyard properties, problem roads could be decommissioned (BMP-19). In some cases, at these same properties a new storm-proofed road (BMP-20) also could be constructed to maintain property access. Based on property inspections/farm plan reviews conducted at more than 100 vineyard properties in the project area, Water Board staff estimate decommissioning of problem roads would be an uncommon BMP that would occur at 2 percent-or-less of all Vineyard Properties[4]. Assuming a worst case scenario, that 25 percent of total road length within the properties with problem roads would need to be relocated (to meet the road performance standard for hydrologic connectivity), we estimate vegetation cover on up to **an additional 6 acres[5] of land could be disturbed**.

Considering the Napa River watershed average value for percent cover in forest lands, which is 33 percent of (75 acres for basins/wetlands + 6 acres for relocated roads = 81 acres disturbed) **corresponds to a maximum of 27 acres of forest land that could be converted**. **Conversion of 27-of-121,600 acres would correspond to a less than significant impact**."

"Impact 4.4: Implementation of BMPs would not result in ~~the~~ a substantial loss of forest land or a substantial conversion of forest land to non-forest use.
See the discussion above of Impacts 4.1and 4.3. The Proposed

condition of hillslope vineyard development. Also, prior to this requirement, detention basins were constructed at some hillslope vineyards, where forest conversions occurred including large hillslope vineyards on Mount Veeder.

[4] Of the more than one hundred vineyard properties where Water Board staff conducted site inspections and reviewed Vineyard Property farm plans, problem road segments were identified at only two properties, and, at both sites, it was possible to substantially reduce road-related sediment delivery to channels by addressing diversion potential at crossings, minimizing hydrologic connectivity, and limiting vehicle traffic during the wet season. For these reasons, we conclude that decommissioning problem road segments and/or constructing new storm-proofed road segments will be a very uncommon compliance action.

[5] The maximum areal disturbance of roads at any property would correspond to relocation of ¼ of the length of the unpaved roads at a given property to get from 50 percent (baseline value for hydrologic connectivity) to 25 percent hydrologically connected (the performance standard in the permit). Given an average road density of 4.5 mi/mi^2 within the project area, and 90 percent of the length being unpaved (4 mi/mi^2), then to get from 50-to-25 percent hydrologically connected, would require relocating 1 mile of road for every square mile of property. Two percent of 54,000 acres of hillslope Vineyard Property corresponds to approximately 1080 acres of property, and 8900 feet of road (1.7 miles) that could be relocated. Given an average road prism width of 25 feet, the area that could be disturbed is approximately 5.1 acres, or rounding-up, 6 acres."

Project would not otherwise result in conversion of significant portions of farmland to non-agricultural use or conversion of forest land to non-forest use. ~~No authority to discharge under the General Permit would be allowed if BMP selection and construction results in the loss of forest land or the conversion of forest land to non-forest use~~. Compliance actions that may be located in some cases outside of the footprint of vineyards or roads would convert less than 27 acres of forest land in the project area. This loss is not considered substantial when compared to the total acreage of forest land in the project area Counties, which is approximately 121,600 acres."

"Impact 4.5: Compliance with the General Permit is not expected to 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.

Compliance with the General Permit would not result in conversion of significant portions of farmland to non-agricultural use or conversion of forest land to non-forest use because a) no other aspects of General Permit implementation would indirectly result in conversion of forest land to non-forest use."

Response to Comment 1-5 (cont.): The comment also asserts that the draft EIR does not analyze impacts on timberland conversion for projects that would qualify for a less than three-acre conversion exemption. However, the threshold of significance for timberland in Impact 4.3 is not acreage of timberland converted but rather zoning conflicts. As discussed in the draft EIR revisions, the proposed project would not conflict with existing zoning or cause rezoning of parcels of timberland or timberland zoned as Timberland Production. In addition, any timberland that could be converted under the exemption would likely also be classified as forest land and included in the forest land conversion estimates added to the draft EIR.

Comment 1-6: Traffic Impacts - Farm Plans, prepared under the General WDRs … require site evaluations, construction activities related to BMP implementation, and site visits … . These activities require additional vehicle trips in order to comply with the General WDRs. However, the DEIR does not address traffic impacts. This is surprising, because the Initial Study for the General WDRs states that the project "may result in an increase in truck traffic" and that the construction required on some parcels will temporarily increase vehicular traffic (General WDR, Initial Study, pp. 66 and 67). There is no evidence or study cited to support of the conclusion in the draft General WDRs Initial Study that there would be no impact on traffic (See *Citizens Association for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151 (holding that an initial study must disclose the data or evidence relied upon)). The DEIR should have disclosed and analyzed potential impacts on traffic, and made conclusions based on that analysis.

Response to Comment 1-6: There was a clerical error in the impact conclusion for the Initial Study Criterion XVI (C). The checklist and explanation for Initial Study Criterion XVI (C) have been corrected in the Final EIR to indicate "less than significant impact" rather than no impact, corrected as follows:

XVI. TRANSPORTATION/TRAFFIC

	Potentially Significant Impact	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
TRANSPORTATION/TRAFFIC -- Would the project				
a) Exceed the capacity of the existing circulation system, based on applicable measures of effectiveness (as designated in a general plan policy, ordinance, etc.), taking into account all relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				X
b) Conflict with an applicable congestion management program, including but not limited to, level of service standards and travel demand measures and other standards established by the county congestion management agency for designated roads or highways?				X
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?			X	~~X~~
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
e) Result in inadequate emergency access?				X
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				X

Response to Comment 1-6 (cont.): The draft EIR need not have included a traffic impact analysis because, notwithstanding the clerical error, substantial evidence in the Initial Study demonstrated the impact was less than significant. The commenter did not provide any evidence that traffic impacts would be significant. Please note that correction to the Initial Study does not require draft EIR recirculation, because it does not identify a new significant impact or new alternative or mitigation measure. (Cal. Code Regs., tit. 14, § 15088.5.)

Comment 1-7: Alternatives Analysis - The DEIR states that the purpose of the General WDRs is to address shortcomings in current regulatory programs, such as the Napa County Conservation Regulations Erosion Control Plan and similar Sonoma County regulations (DEIR, pp. 36–38). The DEIR states that current county-level regulations lack the ability to retroactively control erosion (only plantings since 1991 must have erosion control plans), do not address road-related erosion sources in vineyards, and do not address hillslope erosion (DEIR, pp. 37–38). However, the DEIR rejects project alternatives that would target these issues without sufficient explanation.

For instance, the DEIR rejected an alternative that would have focused the General WDRs on those properties without an approved Erosion Control Plan pursuant to the Napa County Conservation Regulations. This alternative was inappropriately rejected based on its failure to meet the fundamental project objective of implementing the TMDLs. (DEIR, p. 279). The DEIR rejects this alternative without explaining how it fails to satisfy the General WDRs' goal of addressing the shortcomings in the current regulatory scheme, stating that the focus on roads and hillside vineyards would not sufficiently reduce erosion. (*Id.*) It is unclear how the General WDRs, as they currently stand, would afford significantly more erosion control than a combination of existing regulations and a waste discharge requirement that focuses on only those unrelated areas, particularly when existing regulation has improved the health of the Napa River Watershed. It appears that the alternative proposed in DEIR section 10.2.5 would meet the project objectives, and would result in reduced environmental impacts due to its narrower scope. The DEIR does not adequately justify why this alternative was rejected.

Response to Comment 1-7: The ability to meet primary and secondary objectives was properly used as a screening factor to select alternatives for detail consideration. (Cal. Code Regs., tit. 14, § 15126.6, subd. (c).) Alternatives are properly rejected under CEQA if they fail to meet basic project objectives. That was done on draft EIR page 279. The proposed project would afford significantly more erosion control than this limited scope alternative. This limited scope alternative also would not achieve the secondary project objectives to the same extent as the proposed project, thus allowing greater environmental impacts to fish and riparian habitat

throughout the project area for the same reasons explained in the draft EIR:

> "Most vineyards developed with county-approved erosion control plans discharge low-to-moderate rates of sediment delivery to channels from soil erosion in the farmed area, however, staff also have observed instances (at these same sites) where engineered drainage systems are used, in some cases, storm runoff is concentrated and contributes to an erosional response along the hillslope overland flow pathway (e.g., gullying and/or shallow landsliding), and/or to active bed and bank erosion in headwater channels at-or-near the point(s) of discharge from the vineyard (Water Board, 2009a and 2009b, and Napolitano, 2008)."

Sediment delivery to channels associated with concentrated runoff from hillslope vineyard is one of the larger sources of sediment delivery to channels within the project area (see for example, Water Board, 2009b, Table 7a, p. 57).

The commenter provides no evidence that this alternative would reduce any of the proposed project's significant impacts. Also, by way of background, the draft EIR indicated that one reason for developing the proposed project was to address shortcomings in current regulatory programs, but this was not a basic project objective. No revisions to the draft EIR are necessary.

Comment 1-8: Conclusion - We appreciate the opportunity to comment on the DEIR for the General WDRs and hope to continue working with the San Francisco Bay Regional Water Quality Control Board as it develops the General WDRs. We seek a manageable and cost-effective regulatory program that encourages participation, compliance, and protects the public interest, while controlling sediment. We advocate a program that moves the ball forward in terms of water quality protection, but does not create duplicative bureaucracy and unnecessary activities and costs that detract from or usurp resources that would otherwise go towards completing projects and implementing programs that address areas of concern where tangible benefits can be achieved -- such as the Napa River Rutherford Reach and Oakville to Oak Knoll Reach Restoration Projects. We hope that the Regional Board will not adopt the General WDRs in their current form, but continue to work toward final action reasonably addressing water quality concerns while simultaneously promoting a program acceptable to all interested parties.
Finally, we reserve the right to offer additional comments at the hearing.

Response to Comment 1-8: Comments noted.

Comment Letter #2
Assembly Member Dodd
August 25, 2016

Comment 2-1: The comment requests that the Water Board extend the August 29, 2016 comment deadline on the DEIR to allow for additional collaboration between Board staff and stakeholders and to account for the harvest season.

Response to Comment 2-1: The DEIR was released to the public on July 15, 2016 for a 45-day review period, closing on August 29. The process fully complied with all CEQA requirements. The comment period on the DEIR was extended through September 14, 2016, however, to accommodate stakeholder requests for a time extension in light of grape harvest.

Comment Letter #3
San Francisco BayKeeper
September 14, 2016

Comment 3-1: "On behalf of San Francisco Baykeeper ("Baykeeper") and our more than five thousand members and supporters who use and enjoy the environmental, recreational, and aesthetic qualities of San Francisco Bay and its surrounding tributaries and ecosystems, including the Napa River and Sonoma Creek, I respectfully submit these comments….
As currently drafted, the EIR does not include an adequate analysis … of the environmental impacts of authorizing pesticide and nutrient discharges to the Napa River and Sonoma Creek watersheds, neglects to mitigate the environmental impacts from pesticide discharges, and fails to include a reasonable range of alternatives. In order to correct the deficiencies in the EIR, the Regional Board must make the following seven revisions:

(1) *Include the control of pesticide and nutrient discharges as objectives in the Project Description;*
(2) *Establish the baseline for pesticide discharges from vineyard properties;*
(3) *Analyze the effects of pesticide discharges on special-status species;*
(4) *Analyze the environmental impacts of authorizing pesticide discharges on water quality;*
(5) *Require additional mitigation measures to reduce environmental impacts from pesticide discharges;*
(6) *Discuss additional alternatives to complete a reasonable range of alternatives; and*
(7) *Redefine the no project alternative*.

Response to Comment 3-1: This is an introductory comment for those that follow. Each of BayKeeper's suggested revisions to the DEIR are discussed in detail below with responses to each.

Comment 3-2: "The EIR Fails to Include the Control of Pesticide and Nutrient Discharges as Objectives in the Project Description – The EIR repeatedly states that the General Permit would control pesticide and nutrient discharges, in addition to the primary project objective of implementing the Napa River and Sonoma Creek sediment TMDLs, but these secondary objectives are omitted from the Project Description. Because the Project Description does not include all aspects of the Project, the EIR fails to meet CEQA's requirements. . . .

[T]he EIR lists several secondary project objectives, but is silent regarding pesticide and nutrient discharge controls … Moreover, the way that controlling pesticide and nutrient discharges is referenced in

the EIR is confusing and inconsistent… These inconsistencies must be corrected by explicitly recognizing the control of pesticide and nutrient discharges as secondary project objectives in the Project Description.

Had the … Board included the control of pesticide and nutrient discharges in the Project Description, it is likely that the EIR would have included related environmental impacts, mitigation measures, and alternatives, which are also omitted from the EIR. The lack of discussion of pesticides and nutrient discharges in the EIR is shocking, considering the impacts associated with these potentially toxic discharges on special-status fish species and water quality, as described more fully below. Based on BayKeeper's knowledge, the Regional Board does not plan to issue a conditional waiver for irrigated lands, like in Region 3 .., or additional waste discharge requirements ("WDRs") for the discharge of pesticides and/or nutrients in Region 2. Thus, the General Permit is the only means by which the Regional Board intends to permit and regulate pesticide and nutrient discharges by the permittees. . . . Without the addition of the control of pesticide and nutrient discharges to the Project Description, the EIR is deficient. Once these objectives have been properly included in the Project Description, the Regional Board must revise the EIR to analyze the impacts from permitting and regulating pesticide and nutrient discharges.

Response to Comment 3-2: The control of pesticide and nutrient discharges are in fact discussed as part of the "Project Description", specifically in Section 2.3, General Permit Requirements (p. 51), and in Section 2.5, Reasonably Foreseeable Means of Compliance (p. 59 and pp. 80-81).

We note however, that CEQA provides the Lead Agency broad discretion in defining "Project Objectives." In the case of the General Permit, the fundamental and secondary objectives relate to sediment discharge control and/or habitat enhancement, which are the primary compliance actions under the General Permit and which represent large changes as compared to the baseline. Specifically, the General Permit is requiring large-scale erosion and/or sediment discharge control actions in vineyards and unpaved roads that are significant as compared to the baseline condition. In contrast, most vineyard properties within the permit area already have implemented integrated pest management practices and effective nutrient discharge control practices, and, therefore, these control actions and potential environmental effects [with regard to pesticide and nutrient control and discharge] as related to the baseline would be modest. For that reason, pesticide and nutrient control was not listed as a fundamental or secondary project objective.

Comment 3-3: "**The EIR fails to establish the baseline for pesticide discharges from vineyard properties**. The EIR's description of the Environmental Setting must be revised to describe existing pesticide discharges to the Napa River and Sonoma Creek and establish the baseline for such discharges. … Here, the Regional Board cannot properly determine whether or not

impacts from pesticide discharges are significant, since they have failed to establish a baseline for comparison. (*See* EIR at 31-39.) At a minimum, the EIR must be revised to include a description of what pesticides are being applied and what quantities of pesticides are being applied at vineyard properties in the Napa River and Sonoma Creek watersheds. Without an established baseline, the Regional Board cannot conclude that the General Permit will not increase pesticide discharges, nor can it conclude pesticide discharges will decrease, as there are no factual bases for these conclusions. . . ."

Response to Comment 3-3: In response to this comment, the description of baseline conditions with regard to water quality contained in the draft EIR (Section 8.2) has been edited to add the following information at the end of the section (as shown below underlined text):

> Wine grapes are planted over almost the entire land area devoted to farming in the Napa River and Sonoma Creek watersheds, making viticulture in this region highly susceptible to pest infestations, and therefore subject at times to potentially high rates of pesticide application (Altieri et al., 2005).
>
> To further evaluate vineyard pesticide applications within the project area, we reviewed recent published pesticide use data for vineyards in Napa County (note: almost all the vineyards in Napa County are in the Napa River watershed) that summarizes pesticide applications in calendar year 2014 (CDPR, 2014). In Napa County in 2014: a) approximately 75 percent of the total mass of pesticides applied to vineyards was elemental Sulphur; b) mineral oils and/or petroleum distillates constituted approximately 10 percent of the total mass; c) various fertilizers (potassium bicarbonate, lime Sulphur, and ammonium sulfate) constituted approximately 7 percent of the total mass; and d) glyphosate products constituted approximately 3 percent CDPR, 2014). Average total pesticide application rate in 2014 for vineyards in Napa County was approximately 30 pounds per acre, which is about one-fourth of the statewide average value for winegrapes in California (Altieri, 2005).
>
> In Napa County, seven pesticides were applied at > 1000 pounds and over > 1000 acres in 2014, that are of concern because they are xenoestrogens, which may contribute to feminization of Chinook salmon (see, Sedlak, 2010); and/or may they present a moderate to very high aquatic toxicity (defined per Long et al., 2005). These pesticides include pendimethalin, pryaclostrobin, trifloxystrobin, oxyfluorfen, cyprodinil, triflumizole, and imidacloprid, which may pose a potential threat to water quality. At present there is limited information to characterize their potential occurrence and concentration in waters within the permit area. In future years, the Water Board's surface water ambient monitoring

program plans to conduct a pilot monitoring effort to sample for the occurrence of pesticides of high concern, in order to further inform assessment of potential impacts to water quality.

Response to Comment 3-3 (cont.): The Water Board does conclude that the General Permit would reduce pesticide discharges as compare to the baseline.

Also, in response to this comment, the list of references cited in Chapter 9 of the draft EIR has been updated as follows (with additional references cited above, underlined):

References

Altieri, M.A., C.A. Nicholls, L. Ponti, and A. York, 2005. Designing biodiverse pest-resilient vineyards through habitat management. Practical Winery and Vineyard, May/June 2005.

Beagle, J. and M. Salmon. (2015). Marsh expansion and retreat in San Pablo Bay. Report prepared by the San Francisco Estuary Institute-Aquatic Science Center, SFEI-ASC Publication # 751, June 2015. SFEI-ASC: Richmond, CA.

Brand, L. A., L.M. Smith, J.Y. Takekawa, N.D. Athearn, K. Taylor, G.G. Shellenbarger, D.H. Shoellhamer, and R. Spenst. (2012). Trajectory of early marsh restoration: elevation, sedimentation, and colonization of breached salt ponds in northern San Francisco Bay. Ecological Engineering 42 (2012): 19-29.

Brown, W.M. and J.R. Ritter. (1971). "Sediment transport and turbidity in the Eel River basin, California." US Geological Survey Water Supply Paper 1986: Washington, D.C.

California Court of Appeal. (2014). Court Decision in the case of the Living Rivers Council vs. State Water Resources Control Board, A137082, Alameda County Super. Ct. No. RG11560171

California Department of Pesticide Regulation, 2014. 2014 Annual statewide pesticide use report, indexed by commodity, Napa County.

California State Coastal Conservancy. (2015). The Baylands and Climate Change. What We Can Do. Baylands Ecosystem Habitat Goals Update 2105. State Coastal Conservancy: Oakland, CA. p. 141.

Long, R., J. Gan, and M. Nett, 2005. Pesticide choice: best management practice (BMP) for protecting surface water quality in agriculture. University of California, Division of Agriculture and Natural Resources, ANR Publication 8161.

Comment 3-4: **"The EIR Fails to Analyze the Effects of Pesticide Discharges on Special-Status Species.** Pesticide discharges to the Napa River and Sonoma Creek watersheds have adverse impacts on special-status species and must be analyzed in the EIR. … The EIR recognizes that critical habitat for the federally-listed Central California Coast Steelhead has been designated in both watersheds … . In addition . . . , locally rare Chinook salmon also inhabit the Project area. . . . However, there is *no* discussion of the impacts of pesticide discharges on special-status fish species in the EIR. . . . The EIR must be revised to include a full discussion of the impacts of pesticide discharges on special-status *fish* species. Scientific studies indicate that federally-listed Central California Coast Steelhead and locally rare Chinook salmon are adversely impacted by pesticide discharges. … Furthermore, scientists have identified pesticide exposure as a cause of feminization of male Chinook salmon in the Napa River due to exposure to high levels of xenoestrogens (compounds that mimic the effects of estrogen). . . . "

Response to Comment 3-4: The General Permit performance standard for pesticide discharge is as follows:

> "**Pesticide Management**: an integrated pest management program shall be developed and implemented for the vineyard, and effective practices shall be implemented to avoid mixing, storing, or applying pesticides near wells and surface waters, or in ways that could contribute to receiving water toxicity (Draft EIR, p. 51; see also, Appendix A)."

Also, as defined and considered in the draft EIR (p. 81):

> "Integrated pest management (IPM) is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to: human health; beneficial and non-target organisms; and the environment" (University of California, Statewide Integrated Pest Management Program, 2014). IPM is in widespread use at vineyards within the project area. The overall effect of IPM as compared to the baseline would be a modest decrease in pesticide use and/or discharge."

Currently, there are no water quality control permits within the project area to control potential pesticide discharges; there are only pesticide use reporting requirements through CDPR and the Agricultural Commissioner's Office and pesticide labeling instructions that define conditions for legal use. Therefore, at worst, at an individual Vineyard Property where IPM has already been implemented, the pesticide control actions required under the General Permit would have a neutral effect on

pesticide discharges and any related impact to special-status fish species and/or their habitats. At other vineyard properties, where IPM has not been previously adopted, compliance with the General Permit would result in a reduction in potential pesticide discharges and potential impacts on water quality. Therefore, the overall effect of adoption of the General Permit would be to reduce the potential for adverse impacts of pesticide discharges on special-status fish species and/or other water quality conditions or beneficial uses. Staff is unaware of any adverse significant effects that could occur as a result of the proposed pesticide control actions and the commenter does not identify any.

The following change was made to the draft EIR to address this comment (which is inserted at the conclusion to Section 8.2):

> Currently, there are no water quality control permits within the project area to control potential pesticide discharges; there are only pesticide use reporting requirements through CDPR and the Agricultural Commissioner's Office and pesticide labeling instructions that define conditions for legal use.

Comment 3-5: The EIR Fails to Analyze the Environmental Impacts on Water Quality of Authorizing the Discharge of Pesticides - The EIR must be revised to include an analysis of the environmental impacts of authorizing pesticide discharges on the water quality of the Napa River and Sonoma Creek watersheds (*See* Pub. Res. Code § 21100; Guidelines § 15126). The General Permit requires the control of pesticide discharges, but in doing so, it also authorizes the permittees to discharge pesticides to surface waters. Thus, the EIR must evaluate the impact of authorizing such pesticide discharges. One would expect to find some reference, if not a full environmental impact analysis, on pesticides in Section 8.2, Water Quality, of the EIR, (EIR at 233-34) but pesticides are not even mentioned. . . . The EIR must be revised to include a meaningful environmental impact analysis of pesticide discharges on water quality.

Response to Comment 3-5: Please see our Responses to Comments 3-3 and 3-4.

Comment 3-6: "**The EIR Fails to Require Mitigation Measures to Adequately Reduce the Environmental Impacts from Pesticide Discharges** - Since the EIR does not analyze the environmental impacts of authorizing the discharge of pesticides from vineyard properties on special-status fish species and water quality, as discussed *supra* in Sections III and IV, it follows that the EIR fails to require mitigation measures to adequately reduce the environmental impacts from pesticide discharges. CEQA requires that an EIR describe feasible measures to minimize each significant environmental effect identified in the EIR. … "

Response to Comment 3-6: Please see our Responses to Comments 3-3 and 3-4. Staff is unaware of, and the commenter has not identified, any significant effects related to pest control actions that would require mitigation. No changes to the draft EIR were made in response to this comment.

Comment 3-7:

The EIR Fails to Adequately Consider a Reasonable Range of Alternatives to the General Permit - Additional alternatives to the General Permit should be included in the EIR, including expanding the scope of the permittees and adoption of alternative regulatory methods. Under CEQA, the range of alternatives to the proposed project shall include "those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects." (Guidelines § 15126.6(c); *see* Pub. Res. Code §§ 21100, 21002, 21061.) The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to "set forth only those alternatives necessary to permit a reasoned choice," and shall be selected and discussed "in a manner to foster meaningful public participation and informed decision making." (Guidelines § 15126.6(f).)

All of the alternatives considered in the EIR reduce the scope of permittee coverage. Thus, the EIR improperly reviews only alternatives that would result in more environmental impacts by regulating fewer vineyards. . . . It is inconsistent for the General Permit, which requires construction activities for compliance, to be applicable to vineyard properties greater than 5 acres, when the Construction [General Stormwater] Permit is applicable to sites on-fifth that size. . . .

The EIR also should have included an alternative that adopts a different regulatory method to control discharges from vineyard properties, such as a conditional waiver of WDRs or discharge prohibitions. . . . Under a conditional waiver of WDRs, the objectives of the General Permit would likely be met, and in addition, this alternative would probably require surface water quality monitoring in addition to the photographic monitoring required by the General Permit. . . ."

Response to Comment 3-7:

As stated in the draft EIR (p. 275):

> "CEQA Guidelines section 15126.6, subdivision (c) recommends that an EIR describe the rationale for selecting each of the alternatives. A reasonable range of alternatives is considered for this analysis. The following factors were considered in identifying a reasonable range of alternatives to the project:
>
> - Does the alternative accomplish the fundamental, and all, or most of the secondary (other) project objectives?
> - Is the alternative feasible from an economic, environmental, legal, social, and technological standpoint?
> - Does the alternative avoid or lessen any significant negative environmental effects of the project?"

We did not consider alternatives that would regulate smaller vineyards because regulation of vineyards smaller than 5 acres is not necessary in order to achieve the fundamental project objective, which is:

> "to implement the Napa River and Sonoma Creek sediment

> TMDLs to achieve vineyard property performance standards for sediment discharge and storm runoff." (draft EIR, p. 45)

As noted in Response to Comment 7-6, the General Permit's Performance Standards for Vineyard Property sediment discharge and storm runoff are equivalent or superior to the Performance Standards in the adopted Napa River and Sonoma Creek sediment TMDLs contained in the Basin Plan. Furthermore, under the proposed project, parcels where a 5 acre-or-larger vineyard is planted would be enrolled in the General Permit. Under the proposed project, we estimate that approximately 42,900-of-45,800 acres of land planted in vineyards in the Napa River watershed would be enrolled in the permit (Matt Lanborn, Napa County, Department of Planning, Building, and Environmental Services, 2016, unpublished GIS calculations), or approximately 94 percent of the total planted area[6]. As such, sediment discharges associated with vineyards, through regulation of parcels where a 5 acre-or-large vineyard is planted, are expected to achieve the level of sediment control specified in the adopted TMDLs.

Furthermore, enrolling vineyards smaller than 5 acres *would not avoid or lessen* potentially significant environmental effects of the project. Instead, the magnitude of potentially significant environmental impacts described in the draft EIR would be increased commensurate with the increase in vineyard and parcel acreage enrolled and, therefore, the footprint of the compliance actions. In summary, alternatives with a lower threshold vineyard size would not lessen or reduce potentially significant environmental effects; instead, they would slightly increase these, and such alternatives involving additional regulation were not considered.

Staff has previously considered a waiver of WDRs as opposed to WDRs. There are no substantive differences between WDRs and a waiver of WDRs with regard to water quality control terms and conditions. The only substantive differences are from an administrative perspective. Under a waiver, permit enrollment fees may be waived, and the waiver must be readopted at least once every five years. Under WDRs, dischargers pay fees to enroll, and there is no requirement to readopt the permit at a regular frequency. WDRs, once adopted, can be in effect indefinitely. From a CEQA standpoint, this choice has no bearing on environmental effects; instead it is a water quality control administrative decision. The commenter does not explain the substantive difference between these regulatory mechanisms, nor any environmental benefits to be obtained by using a different regulatory mechanism.

No changes were made to the draft EIR in response to this comment.

[6] Mapping to delineate the footprints of the planted vineyards in the Sonoma Creek watershed is not available. In the absence of mapping specific to the Sonoma Creek watershed, we have assumed that vineyards smaller than 5 acres comprise a similar fraction of the total planted acreage of vineyards in the Sonoma Creek watershed, as they do in the adjacent Napa River watershed.

Comment 3-8:

"**The EIR Incorrectly Defines the No Project Alternative –** The EIR's characterization of the no project alternative is incomplete, and does not comport with the requirements of CEQA. Analyzing the no project alternative allows decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. (Guidelines § 15126.6(e)(1).) In addition to discussing the existing conditions at the time the notice of preparation is published, the no project alternative "must discuss what would be reasonably expected to occur in the foreseeable future if the project were not approved." …"

Response to Comment 3-8:

This comment objects to the "No Project Alternative" analysis in the DEIR. The commenter objects because the Water Code prohibits discharges without a permit, so that the No Project Alternative should be some form of alternate regulation by the Water Board, such as individual WDRs.

The CEQA Guidelines instruct that the No Project Alternative shall discuss the existing conditions at the time the notice of preparation is published as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved. (CEQA Guideline 15126.6, subd. (e).) The DEIR complies with this requirement. (See DEIR, pp. 28, 281.) We did not discuss an option of regulating each vineyard under WDRs because the Water Board simply does not have the resources to do so. Within the Napa River watershed alone, there are approximately 1700 parcels where a 5 acre-or-larger vineyard is planted (Lanborn, personal communication, 2016). Individual regulation of these vineyards would not occur in the foreseeable future if this General Permit is not approved. CEQA does not require the Water Board to speculate. (Cal. Code Regs., tit. 14, § 15126.6, subd. (f)(3), citing *Residents Ad Hoc Stadium Committee v. Board of Trustees* (1979) 89 Cal.App.3d 274 ["An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative"].) The DEIR appropriately focused only on what is "reasonably expected" to occur, which is that the TMDL sediment objectives would not be met in the absence of general WDRs.

Assuming that the Water Board adopted the commenter's construction of the No Project Alternative, the result would be that all vineyards requiring regulation would be regulated. Presumably then, those vineyards would also be regulated in a fashion similar, if not identical to, the manner proposed by the General Permit. If that is the case, the difference between the proposed project (the General Permit) and the No Project alternative would be negligible. To put it simply, in evaluating the proposed project, the DEIR has already evaluated the potential impacts for the No Project Alternative that the commenter suggests. Adding the suggested No Project Alternative would not provide a new or different analysis. No changes were made as a result of this comment.

Comment 3-9: "Conclusion - … Baykeeper requests that the EIR be revised and recirculated to provide an appropriate level of public review in accordance with these comments. The General Permit is an important step to reduce sediment discharges and improve the water quality of the Napa River and Sonoma Creek watersheds; however, the General Permit regulates more than just sediment, and these additional constituents—pesticides and nutrients—must be fully discussed, and their environmental impacts fully analyzed and mitigated, in the EIR. Additionally, the alternatives analysis in the EIR must be revised to include a reasonable range of alternatives and to redefine the no project alternative. As written the EIR is fundamentally flawed and fails to fulfill the basic purposes of CEQA. This is the Regional Board's chance to protect the Napa River and Sonoma Creek from all constituents that pose a threat to water quality. . . ."

Response to Comment 3-9: This comment summarizes the specific earlier comments. No changes were made in response to this comment. In response to the request for recirculation, the draft EIR has not been recirculated because any changes are clarifications, amplifications, or insignificant modifications. There are no new significant impacts or any other condition that would warrant recirculation. (Cal. Code Regs., tit. 14, § 15088.5.)

Comment Letter #4
United Winegrowers of Sonoma County
September 13, 2016

Comment 4-1: The commenter finds that the DEIR applies an inconsistent approach to the farm plan, overstates the miles of roads and impacts, and ignores the work previously completed in the project area.

Response to Comment 4-1: This comment provides an introduction to the comments that follow. Responses to each concern are below.

Comment 4-2: The comment encourages a voluntary program in lieu of the General Permit. It asserts that voluntary implementation of the code of sustainable wine growing processes and practicing BMPS in the Napa River and Sonoma Creek watershed is well beyond 40 percent. With additional progress being made by the Sonoma County's Winegrape Commission, broad scale application of the BMPs will be completed prior to the future deadlines required by the General Permit. Part two of this comment states that the DEIR "focuses" on construction activities related to General Permit implementation and "wanders into the use of, and impacts from, heavy equipment as well as proposing to fix problems that predate baseline conditions such as forest conversions."

Response to Comment 4-2: The commenter is raising two points. Part of the comment suggests that the General Permit is not needed in light of local sustainability efforts and progress made in installing BMPs. This concept is very similar to the "Deferred Project" alternative presented in Section 10.2.1 of the DEIR. As explained on page 276, we conclude that the voluntary, unenforceable nature of such an alternative does not meet the fundamental project objective of the General Permit by the deadlines established in the Basin Plan amendments for the sediment TMDLs. Furthermore, this approach is inconsistent with the State Water Board's 2004 Policy for Implementation and Enforcement of the Nonpoint Source Control Program (NPS Policy), which requires that all sources of nonpoint sources that could affect water quality be regulated through waste discharge requirements, waiver of waste discharge requirements, and/or prohibitions.

The commenter appears to criticize the draft EIR's discussion of construction activities related to BMPs but does not identify a basis for removing that discussion from the EIR. Vineyard properties and associated roads are identified in the Napa River and the Sonoma Creek sediment TMDLs as sources of sediment that affect water quality. Installation of some types of BMPs to comply with the General Permit will require the use of construction equipment. Therefore, the DEIR evaluates a range of reasonably foreseeable BMPs that may be constructed and/or installed to comply with the performance standards of the General Permit.

Comment 4-3: The comment quotes multiple excerpts from the DEIR regarding miles of roads and vineyard acreage and asserts that the DEIR overstates impacts, concluding that vineyards play a "limited" role in contributing sediment to the Napa River and Sonoma Creek watersheds. The comment contests the draft EIR statement that up to 800 miles of unpaved roads could be include in the General Permit. Lastly, the comment requests that the DEIR be edited to 1) compile, on a watershed level, the acreage and road mileage estimates used in the DEIR and, 2) clarify if tidal areas are included in the project area. The commenter further suggests that the project area to reflect only spawning areas.

Response to Comment 4-3: Although the comment reiterates information in the DEIR, the information is presented out of context and includes personal statements and opinions that are not part of the DEIR, all while providing no new land use data to support refinement of our environmental impacts analysis.

Please also note that the draft EIR (p. 248) cites Napolitano (2006) as the reference for the estimated road density within the permit being equal to approximately 4.5 miles of road per square mile of land area, and that reference presents the road density calculation as follows:

> "We reviewed and interpreted recent road erosion surveys conducted by Pacific Watershed Associates in three Napa River tributary watersheds: Carneros, Dry, and Sulphur, where we applied the tributary specific rates developed by Pacific Water Associates (PWA, 2003a, PWA, 2003b, and PWA, 2003c).
>
> Nine percent of the land area in the Napa River watershed drains into these tributaries.
>
> Methods used by Pacific Watershed Associates are as follows:
>
> 1) Time sequential aerial photographs (1940, 1985, and 2002) were interpreted to estimate total length (age classes, and change in length over time) of roads above named tributary watersheds. 173 miles of roads were detected on the aerial photographs within the three watersheds, <u>for an average road density of 4.5 mi/mi^2 in the surveyed areas</u>." (Napolitano, 2006, Section 1.5)

Also, note that the Water Board (2009a, p. 141) states that approximately 90 percent of roads within the Napa River watershed are unpaved. Therefore, as presented in the draft EIR (p. 248), we estimated that up to 125,000 acres (195 mi^2) of Vineyard Property could be enrolled in the General Permit. Using a value of 4.5 mi/mi^2 for total road density and considering that approximately 90 percent of this road length is unpaved, we estimated that there would be approximately 800 miles of unpaved roads within the Vineyard Properties that could be enrolled. Considering the baseline value for hydrologic connectivity (50 percent of length

connected), the draft EIR estimated that about ¼ of the total length of unpaved roads would need to be treated, or about 200 miles of road.

The other road mileage numbers that the commenter cites are not relevant to the environmental analysis in the draft EIR. However, please note for example that the 915 miles of unpaved roads in the Napa River watershed that the commenter mentions (Comment Letter #4, p.2) corresponds to the number of miles of unpaved roads that are located on private property in upland areas within the Napa River watershed (private property in upland areas of the Napa River watershed cover approximately 227 mi^2). 915 miles divided by 227 square miles equals a road density of approximately 4 mi/mi^2, roughly equivalent to the value used in the draft EIR (4.5 mi/mi^2). The draft EIR took a conservative approach, using the higher estimated value for road density (4.5 mi/mi^2) in order to ensure consideration of the maximum potential significant effects.

The commenter also expresses the personal opinion that vineyards play a limited role in sediment delivery to the Napa River and Sonoma Creek. This opinion is contrary to the scientific evidence provided in the peer-reviewed sediment TMDLs completed for these watersheds and has no bearing on the adequacy of the environmental analysis. [see for example, Water Board 2009a, pp. 13-58;]

Please also note for clarification, that the area subject to regulation includes the entire land area that drains into the Napa River and Sonoma Creek, including their tidal reaches.

No revisions were made to the draft EIR in response to these comments.

Comment 4-4: This comment falls under the heading of "Ignoring Previous Work in these Watersheds." It quotes multiple excerpts from the DEIR and Napa River sediment TMDL regarding dams in the Napa River watershed, specifically, their capacities, locations, and sediment trapping efficiencies. The commenter goes on to claim that no credit is given to a researcher who prepared the sediment source analysis for the Napa River sediment TMDL and asserts that all background materials and studies are not properly presented. The commenter requests access to all references.

Response to Comment 4-4: This comment is not relevant to the adequacy of the environmental analysis in the DEIR. The Napa River sediment TMDL, including its sediment source analysis and implementation plan that identified the contributions of vineyard properties to the sediment impairment, was previously peer-reviewed and is not the subject of this review. That report, in quantifying sediment delivery to the Napa River, accounted for the sediment trapping effects of tributary dams. All references cited in the document are available through the Water Board.

Please also note with regard to background materials and sources, the

Water Board's contract for Martin Trso, who was the lead investigator for the sediment sources analysis for the Napa River watershed as acknowledged in Water Board (2009a), did not include funding for report preparation, and he did not prepare a report on this work under contract or independently. Also, in response to this comment, we make the following correction to add the reference, Napolitano (2016), that we inadvertently neglected to include in the references section at the conclusion of Chapter 8, which is revised as follows (the reference is underlined):

"Napa County Flood Control District. (2015). Construction Schedule for the Napa River/Napa Creek Flood Protection Protect, as downloaded on 30 November 2015 at http://www.countyofnapa.org/Pages/DepartmentContent.aspx?id=4294968278

Napolitano, M.B, 2008. Unpublished memo to file, Vineyard design/management and relationships to on-site surface erosion rates and off-site erosion via concentrated runoff.

Napolitano, M.B., 2016. Unpublished analysis of forest lands converted to vineyards within the project area.

NOAA Online Weather Data. (2015). Monthly Climate Norms for Napa State Hospital, 1981-2010, as downloaded on 30 November 2015 at http://w2.weather.gov/climate/xmacis.php?wfo=mtr

NOAA Atmospheric River Information Page. (2015). As downloaded on 30 November 2015 at http://www.esrl.noaa.gov/psd/atmrivers/.

Comment 4-5 – The comment quotes excerpts from the Napa River sediment TMDL cost analysis, stating that at least 75 percent of the cost of actions proposed in the TMDL would be paid for with public funds. The commenter concludes that the General Permit is not needed and that we should "build upon what has worked, like the Farm Plan - that has shown positive results, at a fraction of the cost."

Response to Comment 4-5: Similar concerns regarding the costs of BMP implementation were expressed during the scoping meeting for the DEIR (section 3.3, Economic Considerations, page 86). Our analysis concluded that the costs of compliance with the General Permit do not translate into direct or indirect impacts on the environment.

Farm plans are a key element of the General Permit and we agree that, where completed and the farm planning process identified BMPs have been installed and/implemented, the farm planning process has shown good results. No changes were made to the draft EIR in response to this comment.

Comment Letter #5
California Farm Bureau Federation
September 14, 2016

Comment 5-1: The California Farm Bureau Federation ("Farm Bureau") is a non-governmental, non-profit, voluntary membership California corporation whose purpose is to protect and promote agricultural interests throughout … California and to find solutions to the problems of the farm, the farm home, and the rural community. Farm Bureau is California's largest farm organization, comprised of 53 county Farm Bureaus currently representing approximately 53,000 … members in 56 counties. Farm Bureau strives to protect and improve the ability of farmers and ranchers engaged in production agriculture to provide a reliable supply of food and fiber through responsible stewardship of California's resources. Farm Bureau, on behalf of the Napa County Farm Bureau and the Sonoma County Farm Bureau, appreciates the opportunity to provide comments on the … draft Environmental Impact Report ("DEIR") … . Farm Bureau offers the following concerns and comments regarding the scope and content of the environmental analysis and environmental documentation for the draft Vineyard WDRs.

Response to Comment 5-1: Comments noted. These are introductory comments for those that follow. Responses to specific comments are below.

Comment 5-2: Agricultural resources must be considered during the environmental review. "Overly-expansive and duplicative regulations may conflict with the State's policy [to 'sustain the long-term productivity of the State's agriculture by conserving and protecting the soil, water and air that are agriculture's basic resources']. . . . CEQA requires analysis of significant environmental impacts and irreversible changes resulting from proposed projects [including] unavoidable impacts; direct, indirect, and cumulative effects; irreversible and irretrievable commitment of resources; relationships between short-term uses and long-term productivity; and growth-inducing impacts to the environment. Pursuant to CEQA, the physical environment includes agricultural lands and resources. Given the national and statewide importance of agriculture and the legal requirements of environmental review, Farm Bureau urges the Regional Board to properly assess all direct and indirect effects on the agricultural environment resulting from the proposed project in its environmental analysis. . . ."

Response to Comment 5-2: The draft EIR includes an analysis of potential indirect, direct, and cumulative effects on agriculture as a result of reasonably foreseeable actions that may occur to comply with the General Permit for vineyard properties, which is based on substantial evidence including as presented in the draft EIR in Chapter 3 (pp. 86-88), Chapter 4 (pp. 91-115), Chapter 9 (pp. 261-264), and Chapter 10 (pp. 280-284).

Comment 5-3: The commenter encourages the Regional Water Board to develop the most efficient and feasible program that accomplishes water quality goals and the stated objective of the Vineyard WDRs. "Given the diverse array of geography, topography, local conditions, and agricultural commodities grown in Napa and Sonoma counties, water management and monitoring programs must be flexible and allow for necessary adaptations, both for localized areas and throughout the region. In addition to being flexible, future regulations and project alternatives must be feasible such that they are 'capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.' [Citation omitted.] All components of feasibility must be fully analyzed within the Regional Board's environmental analysis of the regulations and its impacts to agriculture."

Response to Comment 5-3: The commenter focuses on the feasibility of implementing water management and monitoring programs. The commenter does not identify any specific shortcoming in the DEIR. We have provided an expansive analysis of the feasibility and likelihood of use of various BMPs in the DEIR (DEIR, pp. 53-81). The DEIR describes the prevalence of these techniques (demonstrating feasibility), as well as the use and recommendation of these techniques by local regulatory agencies and third parties such as Fish Friendly Farming and LandSmart. There is an extensive evaluation of economic impacts as well (See Response to Comment 1-2). No changes were made as a result of this comment.

Comment 5-4: Scope of Regulations – "[T]here is no need for the Regional Board to impose arbitrary restrictions on agriculture so long as farmers take necessary steps to demonstrate water quality improvement over a scientifically feasible timeline with intermediate milestones." The commenter asserts that the agricultural community has been taking necessary steps to demonstrate water quality improvements and suggests that "the Regional Board should evaluate water quality data and sediment data collected and use such data to implement and adjust management practice implementation. Further, problem areas should be identified by reviewing the respective TMDL studies, in particular the Limiting Factor Analysis and Sediment Source Analysis reports, of both the Napa River and the Sonoma Creek watersheds. The process of designing and adopting a new agricultural discharge program will take time and further collaboration between the Regional Board and agriculture will be necessary to develop a workable long term solution."

Response to Comment 5-4: The commenter effectively suggests that the Water Board should adopt the No Project Alternative and not regulate vineyards. This alternative was discussed and rejected because data and evidence do not support that such inaction would lead to implementation of the TMDLs within a foreseeable timeframe (DEIR, p. 275 *et seq* [Alternatives Analysis]). No changes were made as a result of this comment.

The commenter also suggests using almost the exact process undertaken by Water Board staff to craft the proposed General Permit. Using TMDL studies, sediment and water quality data, as well as an evaluation of vineyard practices and attributes, staff have determined the source of the sediment impairment and identified measures necessary to implement the Napa and Sonoma TMDLs (DEIR, pp. 31-32 describing vineyards' contributions to channel incision, fine sediment contribution, and sources of sediment from vineyard farming areas and unpaved roads; see also pp. 31-36 "existing physical conditions").

As identified in the General Permit, the Tiers correlate to "problem areas" the staff has identified. They are structured to avoid regulating where vineyards are properly managed and to require more monitoring and actions where vineyards pose a higher risk due to location or prior lack of management. No changes were made as a result of this comment

Please also note, subsequent to completion of the draft EIR, in response to comments on the draft General Permit: a) the Vineyard Property definition was revised, so that it would only regulate parcels where a 5 acre-or-larger vineyard is planted (removing several adjacent parcels from regulation that contain unpaved roads, but no planted vineyard, and hence reducing road-erosion control costs); b) we provided clarification that the road erosion control performance standards only apply to Hillslope Vineyard Properties. These changes will reduce the extent of required road erosion control actions.

Comment 5-4b:

Vineyard WDRs Should Be Focused on the Problem Areas – "As currently drafted, the Road Performance Standards … cover the entire vineyard property, not just the vineyard facility. . . . It also covers all roads and does not prioritize the areas with high- and moderate-high-priority erosion sites, distance from surface waters, or parcel size or planted acres. As proposed, the Road Performance Standards are overly extensive and will be extremely expensive to implement. Given the concern about the financial hardship …, the DEIR should provide the estimated cost per mile to assess and improve the road system to reduce road-related sediment delivery, as well as an analysis of the potential to achieve the target sediment reductions. . . . [T]o adequately capture applicable costs and associated impacts versus benefits, alternatives for the Road Performance Standards must be analyzed that look at 1) the entire vineyard property, 2) the vineyard facility, and 3) areas identified as high priority erosion areas. Since the DEIR does not contain these analyses, [it] should be revised and recirculated."

Response to Comment 5-4b: The commenter provides no data concerning the cost of implementing the Road Performance Standards. The draft EIR discussed road erosion control efforts and/or considered potential environmental impacts related

to economics. We made the following changes to the General Permit (that resolve the concerns raised):

a) The Vineyard Property definition would only regulate parcels where a 5 acre-or-larger vineyard is planted (removing several parcels from regulation that contain unpaved roads and hence reducing road-erosion control costs);

b) We provided clarification that the road erosion control performance standards only apply to Hillslope Vineyard Properties; and

c) We added a finding to the General Permit to prioritize technical assistance and grants for certain limited resource farmers (as defined by USDA) and also to provide these parties necessary flexibility to achieve compliance with the General Permit, including through adjusted farm plan, monitoring, reporting, and/or time schedules for compliance.

With these changes, the General Permit would only regulate roads within the vineyard facility (just the parcels where a 5 acre-or-larger vineyard is planted) for those cases where a Vineyard Property includes a hillslope vineyard (that is a vineyard planted on an average slope > 5 percent).

Please also see our Response to Comment 1-2, where we summarize the economic information reviewed and considered in developing the General Permit, and also our Response to Comment 8-4, where we summarize the draft EIR analysis of indirect (economic considerations) and direct effects of the project on Agricultural Resources.

Also, please note that we did include a typical cost estimate for required road erosion control actions (See Section 3.3, cost per mile was estimated at $23,000 per mile).

As to the portion of the comment that relates to considering additional alternatives as related to the scope of road erosion control actions, please note that the draft EIR did present this alternative and discussed why this alternative was rejected (Section 10.2.2, pp. 276-277).

Also note that as described in the draft EIR, the sediment problem in the project area is not a "problem sites" paradigm; instead, as explained in the Regional Setting for the Hydrology and Water Quality Chapter (draft EIR, Section 8.1, p. 231):

> "Within a given bedrock or alluvial deposit type, land-use activities exert a significant influence on total sediment supply to channels, and in all cases, regardless of terrain type, half-or-more of total sediment supply to channels is associated with land-use activities[50] – primarily intensive historical grazing, viticulture, and/or roads (Water Board, 2009, pp. 42-47; Water Board, 2008,

Table 5, p. 43)."

Related Footnote:

"[50] In the stream channels draining hard volcanic bedrock, where natural supply is very low, a doubling of supply causes high quality winter refuge habitat for salmonids to be significantly degraded (i.e., with the increase in sediment supply, sand and fine gravel fills in the spaces between cobble-boulder bedforms making them no longer suitable as refuge habitats for juvenile steelhead and other aquatic wildlife species).This is one example of why we have not focused our permit program "on high sediment supply problem sites." We need to restore the refuge habitats, as well as improve the overall condition of the Napa River and Sonoma Creek in order to support recovery of large resilient steelhead populations in the Napa River and Sonoma Creek watersheds."

The General Permit is properly focused and would not contribute to significant direct or indirect impacts on Agricultural Resources.

Comment 5-5: "The DEIR is not based on substantial evidence but rather mere speculation - Prior to approving a project *decision-makers* must be provided with the fullest extent of information available upon which to *base* their *decision*. This determination is based upon whether it can be fairly argued, given the substantial evidence in light of the whole record, that a project may or may not have a significant effect on the environment. "Argument, speculation, unsubstantiated opinion or narrative, or evidence…shall not constitute substantial evidence" (Cal. Code Regs., tit. 14, § 15064(f)(5)).

The DEIR is not based on substantial evidence but rather mere speculation and uncertainty. For example, the DEIR concludes:

"The General Permit will not result in any amount of land permanently converted or committed to urban or other nonagricultural uses" (DEIR, p. 4).

"Even if the grower succumbs to economic pressure and is forced to sell their land or be forced out of business, the most likely possibility is that the land would be sold to another grower, resulting in a similar environmental impact" (DEIR, p. 112).

"It is therefore highly unlikely that the General Permit would render a vineyard operation economically unviable. In the unique circumstance where the cost of BMP installation may be too great or the loss of production of displaced planted areas would make the operation unprofitable, neither scenario would permanently or irretrievably convert the affected Farmland to

non-agricultural use. The land would still be available for agricultural uses and therefore implementation of BMPs would be considered a less than significant impact" (DEIR, p. 112).

As evidenced in the small selection of examples provided above, some of the DEIR's conclusions are based upon speculation and uncertainty rather than substantial evidence. . . . Mere statements of uncertainty or deflections to avoid a proper analysis regarding impacts to agricultural resources or economic impacts do not meet CEQA burdens. Therefore, the DEIR must be revised so that all conclusions are supported by substantial evidence rather than speculation."

Response to Comment 5-5: The DEIR analysis of economic considerations in Section 3.3 is based on substantial evidence. "Substantial evidence" includes facts, fact-related reasonable assumptions, and expert opinions based on facts (California Code of Regulations, Section 15384). As described in the DEIR, there are four categories of cost, each of which was considered in relation to typical cultural practices and operating expenses within the project area. Also, please note that the estimated administrative costs that were presented are extremely conservative values (the worst case scenario). In response to the comment, we have made the following clarifications to the DEIR:

"3.3. Economic Considerations

Under CEQA, economic or social effects of the project shall not be treated as significant effects on the environment. (Cal. Code Regs., tit. 14, § 15131.). Only physical changes to the environment can be considered significant and there must be a chain of cause and effect from economic or social changes to physical changes. Commenters have stated that the costs are too high, but have not provided a chain of cause and effect to physical changes.

Interested parties have submitted comments with regards to the economic pressure the General Permit would place on them. Interested parties speculated that the costs of complying with the General Permit may be so high that a grower would be forced to sell their land or would be forced out of business resulting in conversion of prime farmland to other non-agricultural uses.

Potential costs to comply with the proposed General Permit would fall into four categories:

1) Costs to implement BMPs in the farming area;
2) Administrative costs (enrollment, farm plan preparation, reporting, and monitoring);
3) Costs to implement BMPs to attenuate storm runoff and control gully and/or channel erosion (only applicable at some hillslope vineyard properties); and
4) Costs to implement BMPs on unpaved roads.

The first cost category relates to achievement of performance

standards for vineyard soil erosion, and pesticide and nutrient discharges. Since the performance standards aren't prescriptive, a wide variety of BMPs may be employed (see Section 2.3) within the context of site-specific resource and/or agricultural constraints (e.g., vineyard maturity, soil type, available water resources, etc.), and vineyard production objectives. Cover crops, vegetated filter strips, integrated pest management, and targeted nutrient applications are typical vineyard cultural practices within the project area (Cooper et al., 2012, p. 1). In advance of General Permit adoption, throughout the project area at most vineyard properties, effective practices have been implemented to control vineyard soil erosion, pesticide discharges, and nutrient discharges. This suggests that these BMP costs are reasonable, already accounted for in existing business plans at most sites, and therefore should not be an economic burden to implement at the minority of vineyard properties that have not already done so.

The second category, administrative costs, would include: enrollment fees, coalition group fees, and/or monitoring and reporting fees, and the cost of developing a farm plan. Water Board staff estimate that the total for all of these administrative costs would average less than $300 per acre of planted grapes per year - the maximum value representing a worst-case scenario (Napolitano, 2016a)[27]. In 2014, the average gross for winegrapes grown in Napa County was approximately $16,500 per acre and approximately $9500 per acre in Sonoma County. Therefore, potential administrative costs in most locations would represent less than 3 percent of the gross revenue, suggesting these costs would not be a burden.

The third category is for implementation of BMPs to reduce storm runoff from hillslope vineyards and to control related gully and/or channel erosion. As many as 10-to-20 percent of all hillslope vineyard properties may need to implement additional storm runoff control measures (BMP-1 through BMP-5 and/or BMP-8 through BMP-10), and soil bioengineering projects to control gully and/or channel erosion (BMP-11 and/or BMP-12) (see Section 2.3 for BMP descriptions). Note that the performance standard for discharge of storm runoff control is predicated on BMP implementation being economically feasible. Therefore by definition this category of costs would not present a significant economic burden.

The fourth category of costs is for implementation of road erosion and runoff control BMPs that would have an average cost of about $23,000 per mile of road[28]. Although road BMP implementation would represent additional near-term costs at most hillslope vineyard properties, these costs could be spread out over a 10-year period (the timeframe under the General Permit for achieving the road performance standards), and the net result of the investment in road BMPs

would be roads that over the long-term, in addition to meeting water quality standards, ~~are~~ would be much cheaper to operate and maintain because road repair and maintenance costs would be significantly reduced (Kocher et al., 2007).

Considering all of the above ~~cost categories~~ information together, Water Board staff concludes that the overall cost of complying with the proposed General Permit would not indirectly contribute to a significant conversion of Prime farmland, Unique Farmland, and/or farmland of Statewide Significance to a non-agricultural use."

[Changes to Related Footnotes in this Section of the draft EIR]:

"[27]$300 per acre is the highest value for the estimated administrative costs that would be applicable to a ~~very~~ small vineyard (5-to-10 acres) developed on a very large hillslope parcel (640 acres), where the permittee pays for the full cost to prepare the farm plan). Economies of scale significantly reduce costs per acre to prepare a farm plan and/or to ~~preparing~~ prepare monitoring and reporting submittals."

"[28] ~~In almost all cases, valley floor properties would not need to implemented additional road erosion and runoff control BMPs (because they typically discharge sediment at rates below the performance standard).~~ These costs would apply primarily to hillslope properties. Attainment of performance standards for roads would reduce future sediment delivery by approximately 500 cubic yards per mile per 20-year period, at an average estimated cost of $40 cubic yard of sediment savings: $40/$yd^3$ x 500 yd^3 = $20,000. Road inventory costs are estimated at approximately $2500 per mile. Total estimated cost is approximately $23,000. (Birmingham, 2016, personal communication)"

We also note that, subsequent to completion of the draft EIR, in response to comments on the draft General Permit, we made three changes to address concerns regarding potential for economic hardship, which include the following:

a) The Vineyard Property definition was revised, so that it would only regulate parcels where a 5 acre-or-larger vineyard is planted (removing several adjacent parcels from regulation that contain unpaved roads, but no planted vineyard, and hence reducing road-erosion control costs);

b) We provided clarification that the road erosion control performance standards only apply to Hillslope Vineyard Properties; and

c) We added a finding to the General Permit to prioritize technical assistance and grants for certain limited resource farmers (as defined by USDA), and also to provide these parties necessary

flexibility to achieve compliance with this order including through adjusted farm plan, monitoring, reporting, and/or time schedules for compliance.

These revisions to the General Permit would further reduce costs, and/or provide additional flexibility for limited resource farmers, which provide additional support for the conclusion in the draft EIR that it is highly unlikely that the General Permit would render a Vineyard Property economically nonviable.

Comment 5-6: "[T]he DEIR improperly shifts the burden of proof and determination of significance to the public. For example, the conclusion that the … WDRs will not permanently convert agricultural lands to other uses is based solely on the DEIR's speculative conclusion that any farm operations … forced out of operation due to the costs … will not result in the conversion of agricultural lands because the land would be sold to other growers (and would never be sold to a developer or someone who would take the land out of agricultural production). (See DEIR, p. 112). This conclusion is very speculative and is not supported by any evidence. Additionally, the DEIR states that CEQA scoping comments did not provide additional specific information regarding how the costs of compliance may be high, thus prompting the Regional Board to conclude that "compliance with the General Permit at Vineyard Properties would have a less than significant impact" (DEIR, p. 111). It is the Regional Board's burden, rather than the public's burden to investigate and determine if there is a possible impact. . . ."

Response to Comment 5-6: Please see our Responses to Comments 1-2 and 5-5. The draft EIR's evaluation of indirect and direct effects of the project on potential for conversion of agricultural lands is based on substantial evidence.

Comment 5-7: "Specific environmental concerns … not properly analyzed in the Regional Board's Environmental Impact Report - Upon review of the DEIR, Farm Bureau has identified several specific concerns relating to agricultural resources that are not fully or properly analyzed in the environmental review, as follows:

1. **Accurate and Complete Analysis of All Impacts**: The impact analysis must not be limited to direct impacts from the regulations. The analysis should consider all direct, indirect, and reasonably foreseeable cumulative impacts.

2. **A Full Range of Alternatives Must be Examined**: The Regional Board shall identify and rigorously examine all reasonable alternatives for the project. The range of alternatives must be feasible and must avoid or substantially lessen the project's significant environmental effects "*even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly*."17 A feasible alternative is

> one that is "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." Additional alternatives that were not but should be analyzed within the DEIR include:
>
> (a) The DEIR should fully consider the project as proposed in the draft 2012 Conditional Waiver. . . .
>
> Given that the Technical Advisory Committee concluded that the eligibility criteria "captures an estimated 85 percent of vineyard parcels and cultivated acres in the Napa River and Sonoma Creek watersheds and takes into consideration parcel size, vineyard size, slope, geology, and soil erosion potential," the 2012 Conditional Waiver eligibility criteria is a viable alternative that captures the goals of the Vineyard WDRs.20 Thus, the DEIR should fully consider and analyze the eligibility criteria from the 2012 Conditional Waiver as an alternative.
>
> (b) Mean Annual Sediment Delivery (tons/yr) by sediment source should be estimated for each alternative in a similar manner as shown in Tables 3 and 4 of the Initial Study (See Initial Study, p. 18).

Response to Comment 5-7: We disagree. The DEIR provides an accurate and complete analysis of all potential impacts to agricultural resources as described in the Response to Comment 5-5.

With regard to considering the project as proposed in the 2012 General WDR waiver as a project alternative, we note that the draft EIR (p. 278) does evaluate this alternative and explains why it was rejected, because it failed to meet basic project objectives. Specifically, "the earlier waiver effort relied on less detailed geographic information system (GIS) data … as compared to the information being used to inform the proposed General Permit. It now appears, … that the actual values for enrollment [using the 2012 WDR waiver criteria] would be closer to 70 percent of planted acreage and 50 percent of total [vineyard] property acreage … As such, it is unlikely [e.g., this proposed alternative] to meet the TMDLs' sediment allocations … for roads and unstable areas, which is a fundamental project objective."

We also provide the following correction to address two typos on p. 278:

> "We note, however, that the earlier waiver of WDRs effort relied on less detailed geographic information system (GIS) data and a much less detailed GIS analysis as compared to the information being used to inform the proposed General Permit. It now appears, through integration of more detailed and accurate GIS watershed information, that the actual values for enrollment would be closer to 70 percent of planted acreage and 50 percent

of the total property acreage (Appendix B). As such, it is unlikely ~~that TMDL~~ to meet the TMDLs' sediment ~~allocations~~ load allocations for roads and for unstable areas, which is a fundamental project objective. Therefore this alternative is not considered further."

Finally, the draft EIR's methodologies appropriately analyzed and disclosed sediment reduction associated with each alternative. For example, in comparing the proposed project to project alternatives, we used hillslope planted acreage as a proxy for the amount of sediment discharge control on unpaved roads and as related to erosion caused by concentrated runoff form hillslope vineyards, and we used total property acreage as a proxy for the level of sediment discharge control from soil erosion within vineyards as described in the Alternatives Analysis (DEIR, pp. 280-284) and also in Appendix B (GIS Analysis). The lead agency has discretion to select impact analysis methodologies, and EIRs are not required to conduct every study suggested by commenters. Guidelines Section 15204(a). In response to these comments, no revisions to the draft EIR were made other than correcting the typos as listed above.

Comment 5-8: All Impacts to Agriculture Most be Fully Mitigated - All feasible mitigation measures … must be fully described, and must mitigate for the impacts. A project of this magnitude has the potential to negatively impact agricultural lands, leading to the conversion of significant amounts of agricultural land to non-agricultural use. Rather than including mitigation measures, the DEIR concludes that the "General Permit will not result in any amount of land permanently converted or committed to urban or other nonagricultural uses" (DEIR, p. 4). This statement is speculative and is not supported by substantial evidence. For example, land along farm roads may need to be utilized in a different manner (non-farming manner) in order to prevent sediment/erosion and stormwater runoff, establish stream setbacks, and/or be taken out of production in order to comply with the Vineyard WDRs.

Response to Comment 5-8: Please see our Response to Comment 5-5 above.

Comment 5-9: "Social and Economic Impacts Must be Analyzed Under CEQA - Although impacts that are solely economic … do not constitute "significant effects on the environment," economic or social impacts that will or have the potential to cause a physical change should be considered. … The term "significant effect on the environment" is defined in section 21068 of CEQA as "a substantial or potentially substantial adverse change in the environment." … This focus on physical changes is further reinforced by Sections 21100 and 21151.25. Despite the implication of these sections, CEQA does not focus exclusively on physical changes, and it is not exclusively physical in concern. . . . Thus, in certain situations such as the adoption of an …

irrigated lands discharge program, economic and social effects of the project must be used to determine the significant effects on the environment. . . . A cumulative effect of environmental regulations can be the loss of some farmland either by regulatory restrictions or by the compliance cost burden casualty. The loss of farmland is unquestionably an environmental impact, although its magnitude may be hard to predict. … The DEIR should, in the very least, estimate the percentage of the potentially productive land barred from cultivation and the dollar value of the vineyard owners' or operators' cost for the WDRs compliance. Such figures, when added to those from other regulations, will give the public a proper scope of potential and cumulative impacts and an initial estimate of the amount of farmland that would be lost.

Anticipated … costs to the agricultural community include, … increases in potential fees, management practice implementation, monitoring costs, report preparation, and cost for education, preparation of Farm Water Quality Plans . . ., road improvements . . . and erosion control, as well as other costs. Given that the impacts of water quality regulations frequently take years to materialize, the DEIR should be revised to analyze the economic costs and impacts within a dynamic framework taking into account the projected changes in the economic situation *over time*."

Response to Comment 5-9: The commenter notes that CEQA requires an evaluation of economic and social impacts that have the potential to cause a physical change in the environment. The commenter further notes that a "cumulative effect of environmental regulations can be the loss of some farmland either by regulatory restrictions or by the compliance cost burden casualty." The commenter suggests that the DEIR should "estimate the percentage of the potentially productive land barred from cultivation and the dollar value of the vineyard owner's or operators' cost for the WDRs compliance." The commenter notes that implementation costs include "increases in potential fees, management practice implementation, monitoring costs, report preparation, and cost for education, preparation of Farm Water Quality Plans, road improvements and erosion control, as well as other costs." The DEIR should evaluate the projected changes over time.

The DEIR has considered the potential for environmental impacts related to social and economic impacts, consistent with CEQA Guideline 15131. Staff has considered each of the costs discussed above and evaluated the cost of compliance over time. See Response to Comment 1-2. No changes were made as a result of this comment.

Comment 5-10: "Impact of Reduced Sediment in San Pablo Bay Should be Addressed - As seen from the nearly 40% decrease in suspended sediment in San Pablo Bay that began in 1999, reduced sediment results in the increased clarity of water, triggering excessive phytoplankton growth, which in turn can lead to fish kills due to deprivation of dissolved oxygen. The

decrease in sediment will also hinder natural maintenance and restoration of the bayside wetlands. This is particularly troublesome in view of the predicted sea level rise. . . . Although the reduced sediment input from Napa River and Sonoma Creek may have little overall impact on San Francisco Bay as a whole, it could have a locally significant impact in the northern half of San Pablo Bay. The potential impact of the reduced sediment should, therefore, be addressed within the DEIR and its alternatives analysis."

Response to Comment 5-10: Please see the draft EIR, Impact 8.5, pp. 251-254, where we address this potential impact in detail. No changes were made a result of this comment.

Comment 5-11: The Definition of Vineyard Property is Excessive - The Vineyard WDRs define "vineyard property" as the vineyard facility and all adjacent owned parcels and roads. Such an expansive definition appears to be excessive for the goals the Vineyard WDRs are trying to achieve, and is one of the factors that could lead to high costs resulting in the conversion agricultural lands to non-agricultural lands.

Response to Comment 5-11: See Responses to Comment 5-5 and 8.4. Although we have adequately evaluated the costs associated with compliance with the General Permit, and determined that compliance will not result in conversion of agricultural lands, we have, nonetheless, changed the definition of "Vineyard Property" in a manner that addresses commenters' concerns and still ensures that the General Permit protects water quality and achieves project objectives.

Comment 5-12: "Thank you for the opportunity to provide our comments. We look forward to further involvement and discussion …."

Response to Comment 5-12: Comment noted.

Comment Letter #6
City of Napa
September 14, 2016

Comment 6-1: The comment provides introductory remarks regarding the opportunity to provide comment on the DEIR and to work with Water Board staff.

Response to Comment 6-1: This comment is an introductory statement for specific comments that follow. Specific responses are below.

Comment 6-2: The City of Napa provides information on local reservoirs, explains that Napa County continues to approve new vineyards upstream of the reservoirs, cites county-wide pesticide use statistics, draws an inference that discharges from vineyards adversely affect reservoir water quality , and expresses concern that continued development and operation of vineyards in the Milliken and Hennessey watersheds "is causing water quality degradation that accelerates the need for costly drinking water treatment plan upgrades."

Response to Comment 6-2: This comment does not recommend changes to the General Permit or the DEIR. See response to Comment 6-6, which responds to potential sources of nutrients/algal blooms and further discusses the impact of the General Permit on pesticide use and effects. No changes were made in response to this comment.

Comment 6-3: The comment provides introductory remarks regarding the DEIR's analysis of hydrology and water quality (DEIR, Section 8).

Response to Comment 6-3: This comment provides an introduction to specific comments that follow. Responses to specific comments are below.

Comment 6-4: The comment states the General Permit will authorize discharges of pollutants to the waters of the State that originate on Vineyard Properties (DEIR, page 47), and claims that the DEIR does not adequately define the environmental baseline use to assess the significance of water quality impacts from those authorized discharges. Under CEQA, the environmental baseline may not include degradation from new vineyard discharges authorized by the General Permit and the DEIR should be revised to clearly describe the environmental baseline.

Response to Comment 6-4: The DEIR provides extensive detail regarding the existing environmental conditions at the time of the Notice of Preparation – the baseline. (See DEIR, §§ 1.1-1.3 and the introductory portions of chapters 4 through 8. See in particular pp. 231-243 [baseline specific to water quality].) The baseline does not include degradation from new vineyard discharges *authorized by the General Permit*, because it is limited to existing conditions, but acknowledges that vineyard growth and development is part of the existing conditions in the Napa and Sonoma Valleys and anticipated to continue. (e.g., Draft EIR, Section 2.3, pp. 47-50; Section

2.4., p. 53; Section 2.5, p63; Section 3.1, p. 86 ; Section 3.3 p. 88, Impact 4.1, p. 112; Impact 6-3, p. 195; Impact 8.2, p. 247; Impact 8.4a, p. 248; Cumulative Impacts, p. 263)

To the extent this comment is focused on the baseline specific to water quality conditions and the significance of water quality impacts by discharges that result from implementing BMPs in response to the General Permit, the anticipated means of compliance are discussed at length in pages 53-81 of the DEIR. The potential impacts of implementing those measures are discussed in Chapter 8 (Hydrology and Water Quality), particularly in Chapter 8.7, Hydrology and Water Quality Impacts and Mitigation Measures. On pages 244 through 260, the DEIR describes the water quality impacts associated with actions taken to comply with the proposed General Permit. The conclusion is that the actions taken in response to the General Permit will result in an improvement to the baseline. (DEIR, pp. 255, Impact 8.7 ["Actions taken to comply with the General Permit woud result in substantial beneficial reductions in the discharge of polluted runoff and enhancement of water quality"].) The DEIR acknowledges where there will be temporary impacts as a result of BMP construction (see, e.g., p. 250, Impact 8.4b [acknowledging the significance of the impacts of some construction projects and the reduction of the significance of that impact with identified mitigation measures].) Please also note in response to comments received on the General Permit, its required monitoring program has been revised to focus on evaluation of progress toward attainment of water quality objectives for sediment and also includes required BMP implementation (to confirm required control actions have been implemented) and BMP effectivness monitoring.No changes were made to the DEIR as a result of this comment.

Comment 6-5: The comment requests that the DEIR be revised to apply State's Antidegradation Policy through the significance criteria used to assess the General Permit's water quality impacts.

Response to Comment 6-5: A discussion of the State's Antidegradation Policy has been added to the "Regulatory Setting" (DEIR, section 8.5) as follows:

> ***"Porter-Cologne Water Quality Control Act***
>
> The Water Board's legal authorities to require water pollution control actions are derived from the State's Porter-Cologne Water Quality Control Act (Porter-Cologne) and the federal Clean Water Act. Porter-Cologne gives the Water Boards the authority to issue waste discharge prohibitions, waste discharge requirements (WDRs), and/or waivers thereof, to control discharge of pollutants from point and-nonpoint sources into the waters of the State (California Water Code 13000 et seq). Pursuant to the Porter-Cologne Act and Title 23, the Water Board is authorized to issue waste discharge requirements (WDRs) and water quality certifications (WQCs)

(i.e., permits) for activities that may affect water quality. These permits must implement the Basin Plan, the Clean Water Act for point source discharges to waters of the United States, and statewide plans and policies, including, but not limited to, Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Water in California," which generally restricts dischargers from degrading water quality.

Please also note that the Antidegradation Policy was already considered in developing the project, evaluating potential environmental effects including providing full protection of water quality as indicated in the following findings contained in the General Permit (draft EIR, Appendix A, p. 7):

"**Anti-Degradation**

30. State Water Board Resolution 68-16 ("*Statement of Policy with Respect to Maintaining High Quality of Waters in California*") requires whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality must be maintained. Resolution 68-16 only allows change in the existing high quality if it has been demonstrated to the Water Board that the change is consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses of such water, and will not result in water quality less than that prescribed in the policies. Resolution 68-16 further requires that discharges meet WDRs which will result in the best practicable treatment or control of the discharge necessary to assure that (a) pollution or nuisance will not occur and (b) the highest water quality consistent with the maximum benefit to the people of the State will be maintained. Resolution 68-16 incorporates the federal "antidegradation" policy (Cal. Code Regs., tit. 40, § 131.12). This Order is consistent with these policies because its implementation will result in improved water quality and achievement of TMDL sediment load allocations.

31. This Order will result in the best practicable treatment or control (BPT) of discharges to prevent pollution or nuisance and the maintenance of the highest water quality consistent with the maximum benefit to the people of the State. The management practices required under the Order are BPT because they reflect the state-of-the-art methods for Vineyard Property controls that integrate soil and site

management practices for pest management and weed control, nutrient management, pesticide storage, handling and modern spray techniques, vineyard and road erosion, and road runoff control. The methods have proven to be effective where implemented in vineyards and associated roads."

No changes were made in response to this comment.

Comment 6-6: The water quality monitoring associated with the sediment TMDL does not address drinking water quality in any of the five public water supply reservoirs within the Project area. There is no assessment of impacts in the reservoir due to land-use activities relative to baseline conditions. All monitoring locations were assessed downstream of the reservoirs and ignored the impacts of sedimentation, nutrients, and identification of nonpoint source pollutants that need to be reduced to avoid degradation of reservoir water quality and beneficial uses. Recommend that prior to adopting the General Permit and finding that it will cause no significant adverse water quality effects, the beneficial uses of water as a drinking water supply should be considered. Monitoring should be performed and existing historical data assessed.

Response to 6-6: Currently, there are no water quality control permits for vineyard properties within the project area; there are only agro-chemical use reporting requirements through CDPR and the Agricultural Commissioner's Office and agrochemical labeling instructions that define conditions for legal use. The proposed General Permit would control and reduce potential pesticide and nutrient discharges. The General Permit includes the following performance standards for discharge of pesticides and nutrients (see for example, draft EIR, General Permit requirements, p. 51):

"Pesticide management: an integrated pest management program shall be developed and implemented for the vineyard (UC Statewide IPM Program, 2016), and effective practices implemented to avoid mixing, storage, or application of pesticides near wells and surface waters, or in ways that could contribute to receiving water toxicity.

Nutrient management: best management practices to guide nutrient applications (e.g., fertigation, cover crops, soil amendments, plant and/or soil testing) shall be implemented such that discharges do not contribute to violation of water quality standards."

Therefore, at worst, at an individual Vineyard Property where IPM has already been implemented, the pesticide control actions required under the General Permit would have a neutral effect on pesticide discharges and any related impact to special-status fish species and/or their habitats.

At other vineyard properties, where IPM has not been previously adopted, compliance with the General Permit would result in a reduction in potential pesticide discharge and potential impacts on water quality. Therefore, the overall effect of adoption of the General Permit would be to reduce the potential for adverse impacts of pesticide discharges on special-status fish species and/or other water quality conditions or beneficial uses, including municipal supply. Similarly, where prudent nutrient application practices already have been implemented, at worst, the effect of compliance with the General Permit would be neutral. At other vineyard properties, where prudent nutrient application practices have not been adopted, compliance with the General Permit would result in a reduction in potential nutrient discharges and related impacts on water quality.

Furthermore, with regard to potential impacts of vineyard discharges on reservoir drinking water, premium wine grapes have the lowest nutrient application rate of any widespread row crop cultivated in California (Rosenstock et al., 2013, Table 1, p. 75). At most vineyards, nutrient applications are precisely targeted, using plant tissue analysis and/or soil sampling, since it is counterproductive for vineyard managers to overstimulate growth, which has a negative effect on the quality of premium wine grapes. In most cases, nutrients are delivered via drip lines (fertigation) and deficit irrigation is practiced, which further limit the potential for discharge of applied nutrients. Nutrients bound to sediment or dissolved in runoff also would be reduced because the proposed permit significantly reduces sediment discharges.

Although vineyard development has increased by a significant amount overall in recent decades within the Napa River watershed, the planted vineyard area (1771 ac) in 1993 in the Lake Hennessey watershed (total drainage area = 33,315 ac) represented 5.3 percent of the total drainage area, and the planted vineyard area in 2014 (2477 ac) represented 7.4 percent of the total drainage area, which are still modest percentages of the total drainage area.

Significant algal blooms were first noted in 2010, and the data provided by the City of Napa documents this problem through 2015 (the most recent year for which complete sampling results have been provided). However, there only was a small increase in total vineyard acreage in the Lake Hennessey watershed in the decade preceding significant algal blooms, and planted area was essentially static from the onset of blooms through the most recent year (2014) that vineyard mapping is available. Also, the 2010 through 2015 period, with the exception of water year 2011, was characterized by an extreme and persistent drought. Paleo-climatologists at UC Berkeley suggest that water year 2014 may have been the driest winter in Northern California within the last 500 years (Los Angeles Times, February 3, 2014). Significant problematic algal blooms were documented in reservoirs throughout the State during this extended drought period suggesting that the increased algal blooms in Lake Hennessey may be related at least in part to lower reservoir inflow, warmer temperatures, and/or fewer spills of the reservoir during the 2010

through 2015 period (also shorter periods of high turbidity, which occur during and following storms, could also be a factor by allowing increased light penetration into the reservoir's water). If vineyard development and/or management practices are exerting a significant influence on problematic algal blooms, the relationship would appear to be indirect and/or related to cumulative nutrient loading into the reservoir over time.

Therefore, we find that the overall effect of adoption of the General Permit would be to reduce the potential for adverse impacts of pesticide and nutrient discharges as compared to the baseline. Furthermore, the nutrient and pesticide discharge control actions required in the General Permit (as described as part of our Response to Comment 6-5) are defined as BPT because they reflect the state-of-the-art methods for Vineyard Property controls that integrate soil and site management practices for pest management and weed control, nutrient management, pesticide storage, handling and modern spray techniques, vineyard and road erosion, and road runoff control, and these methods have proven to be effective where implemented in vineyards and associated roads. Also, we note that in future years, that the Water Board may consider including nutrient monitoring upstream of the City's water supply reservoirs to its Surface Water Ambient Monitoring Program. We also remain available to provide technical support or assistance to the ongoing reservoir water quality monitoring effort conducted by the City of Napa.

Comment 6-7: The comment explains that the City of Napa has been monitoring algal growth, reviewing reservoir water column temperature and residual nitrogen and phosphorous data. The comment asserts that algal bloom areas show nitrogen and phosphorous as co-limiting nutrients, and conclude that increased nutrient inputs from upstream vineyards to the reservoirs will increase algal growth. They explain that algal growth, even with the application of algaecides, remains a problem and that the City of Napa and its water customers bear the burden of water treatment and treatment plant upgrades to protect the public and avoid penalties.

The comment recommends that the Water Board recognize and correct its failure to coordinate discharge permitting for vineyards and the City's drinking water plants. The comment further suggests requiring monitoring of pesticides and nutrients in discharges from vineyards draining to municipal drinking water supplies because of "reasonable potential to contribute" to violation of the Antidegradation Policy and water quality standards, that the Water Board require "best practicable treatment or control" and prohibit ongoing degradation. The comment requests that the Water Board ensure that non-point sources do not contribute pesticides and nutrients to its public water supplies and, if contributed, ensure that automatic fines on the City of Napa are not levied.

Response to Comment 6-7: Please see our Response to Comment 6-6. We are not aware of any

evidence that pesticide discharges are contributing to violations of water quality standards in drinking water reservoirs or other waterbodies within the permit area, and, as described in our Response to Comment 6-6, the requirements to implement integrated pest management practices, control sediment discharges and storm runoff from vineyards would further reduce potential discharges. Finally, with regard to the assertion that Water Board staff needs to better coordinate permitting for vineyards and the City's drinking water plant, note that we have coordinated with Water Board NPDES Permit staff. The requirement in the NPDES permit for the City's drinking water treatment plant - to sample for priority pollutants (including a suite of mostly banned organochloride pesticides) once every five years discharges from filter backwash operations, - is a standard requirement required for the permit to be consistent with the California Toxic's Rule, and the required water quality sampling can be performed for a small nominal cost (approximately $1,000). No changes were made in response to the comment.

Comment 6-8: The comment expresses closing remarks.

Response to Comment 6-8: Comment noted**.**

Comment Letter #7
Living Rivers Council
September 14, 2016

Comment 7-1: "This office represents Living Rivers Council (LRC), a non-profit association, with respect to the General Waste Discharge Requirements for Vineyard Discharges in the Napa River and Sonoma Creek watershed (GWDR). I write on LRC's behalf to submit comments on the Draft Environmental Impact Report (DEIR) for this project and to object to approval of the GWDR Order."

Response to Comment 7-1: This is an introductory comment for those that follow. Specific responses are below.

Comment 7-2: "The DEIR assumes that … the runoff performance standards will ensure that the runoff and runoff related sedimentation impacts of using engineered drainage facilities to comply with [its] surface erosion performance standards are less than significant. . . . This assumption reflects multiple failures to proceed in the manner required by law including unlawfully deferring the development of mitigation measures and conflating project components and mitigation measures. In addition, this assumption is not supported by substantial evidence. The Board must evaluate the environmental effects of the 'means of compliance,' including 'reasonably foreseeable means of compliance' specified in any TMDL, including performance standards."

Response to Comment 7-2: Comment noted. This is an introductory summation of comments further described below. Specific responses are below.

Comment 7-2a: "In its appeal brief filed in the litigation Living Rivers Council vs. State Water Resources Control Board, Appellate No. A137082, the Board conceded that efforts to control surface erosion to comply with the Napa River sediment TMDL can increase runoff, which can lead to increased sedimentation of the Napa River (Exhibit 7, Respondents Brief, pp. 29-30). The Board also conceded that the TMDL's runoff standard is a mitigation measure that is adopted to reduce the TMDL's significant sedimentation impact caused by efforts to comply with the TMDL's surface erosion (performance) standard. Yet the (General Permit) treats (its) runoff standards as if they are project components only, not mitigation measures. This is unlawful under CEQA, because an EIR cannot incorporate proposed mitigation measures into its description of the project and then conclude that any potential impacts form the project will be less than significant. . . . CEA does not allow the EIR to avoid analysis for the relative effectiveness of the runoff standards to mitigate runoff related sedimentation impacts in comparison with other mitigation strategies."

Response to Comment 7-2a: The commenter does not provide the proper context for the passage that it cites in the Respondent's Brief (State of California, pp. 29-30); the

complete passage was as follows:

> "To the extent that the project [*the Napa River sediment TMDL*] might promote these engineered drainage solutions to its surface erosion standard, and only to that extent is the runoff performance standard a mitigation measure within the meaning of CEQA."

We agree this passage is relevant to the "programmatic" review of the project [*The Napa River Sediment TMDL]* that was being considered at that time. Furthermore, the essential context is "to the extent that the project might promote," and only to that extent is [*the TMDL's*] runoff performance standard a mitigation measure within the meaning of CEQA. We elaborate on each of these points as follows:

- The Napa River sediment TMDL, and the proposed General Permit for vineyard properties, although related, are not the same project. The General Permit does help implement the Napa River sediment TMDL. However, two fundamental differences are that: 1) the General Permit also includes the Sonoma Creek watershed within its project area; and 2) the General Permit also includes a no-net increase in storm runoff performance standard for new hillslope vineyards, that was not a project component or a mitigation measure of the Napa River sediment TMDL. Characterization of the TMDL runoff performance standard as a mitigation measure for engineered drainage facilities in the SED does not preclude or prohibit the Water Board from including a similar runoff performance standard as a project feature in the draft EIR.

- The performance standards contained in the General Permit are comprehensive regulatory requirements for the control of pollutant discharges including, for example, for soil erosion **and** storm runoff. As described in the draft EIR (p. 247), for an existing hillslope vineyard, if engineered drainage is not already in place, as part of the baseline condition, few if any vineyards would be expected to install subsurface drainage pipes to comply with the General Permit because the existing or replanted vineyard is required to meet **both** performance standards (i.e., for soil erosion **and** storm runoff). As stated in p. 247, engineered drainage facilities that do not meet the storm runoff performance standard are not a reasonably foreseeable means of compliance with the General Permit.

- Also, as described in the draft EIR, the General Permit **does not promote** the use of engineered subsurface drainage pipes and clearly states that its use at a new/proposed vineyard "would only be permissible where hydrologic modeling indicates that the vineyard development wouldn't increase storm runoff, and the proposed vineyard doesn't discharge into an unstable channel" (Draft EIR, p. 34, footnote 11, and p. 63).

- In contrast to the commenter's assertions, inclusion of the runoff performance standard in the General Order project description does

not violate CEQA. The commenter cites to *Lotus v. Department of Transportation* (2014) 223 Cal.App.4th 645, 655-57. Principles in the *Lotus* case cited by the comment, however, are inapplicable to the draft EIR because the facts underlying the *Lotus* case are entirely disparate. In *Lotus*, the lead agency incorporated detailed construction mitigation measures to reduce significant biological impacts of a proposed road realignment project into the project description, and then concluded that the project would not have a significant biological impact. The draft EIR never evaluated the significance of the biological impact or the effectiveness of the construction measures or committed to monitoring the implementation or effectiveness of the construction measures. The construction measures were clearly mitigation measures developed after the project description was prepared that were not closely tied or essential to achieving the road realignment project objectives.

In contrast to *Lotus*, the runoff performance standard is not a measure intended to mitigate the effects of the project but rather "defines the project itself" (see *Lotus, supra*, 223 Cal.App.4th at p. 657, n. 8). The runoff performance standard is an essential feature of the project necessary to achieve the fundamental project objective, which is to (Draft EIR p.45):

> "implement the Napa River and Sonoma Creek sediment TMDLs including achievement of Vineyard Property discharge performance standards for sediment and storm runoff, and ultimately to meet the TMDLs' sediment allocations and targets as needed to restore properly functioning substrate conditions in channel reaches that provide habitat for anadromous salmonids."

The runoff performance standard was, from the very beginning, part of the project design to directly address the existing water quality problems described in draft EIR Section 1.1. It is not a mitigation measure that was developed later to mitigate impacts of the proposed General Permit. (See *Save the Plastic Bag Coalition v. City and County of San Francisco* (2013) 222 Cal.App.4th 863, 882 [10 cent fee in ordinance restricting use of disposable bags properly part of project description and not mitigation measure].) Application of the runoff performance standard to one of the General Permit BMPs, engineered subsurface drainage pipes, does not somehow convert the runoff performance standard to a mitigation measure.

Further, in contrast to *Lotus*, implementation and effectiveness of the runoff performance standard is assured by the required contents of the Farm Plan each discharger must prepare. The Farm Plan must include a specific time schedule and corresponding milestones to measure progress toward attainment of the Vineyard Property performance standards and a monitoring plan to document BMP implementation and assess the effectiveness of BMPs. (Draft EIR p. 53.)

- Because the runoff performance standard is part of the project description and not a mitigation measure, CEQA does not require a comparison of its effectiveness to other potential mitigation measures that could also reduce water quality impacts. In several following comments, the commenter questions the EIR's assumptions that the runoff performance standard will be achieved and effective. However, an EIR may properly assume that a proposed project will be implemented as described, and may make reasonable assumptions based on substantial evidence about future conditions without having to guarantee that these assumptions will remain true. (See *Environmental Council of Sacramento v. City of Sacramento* (2006) 142 Cal.App. 4th 1018, 1035-1036.) Draft EIR Chapter 2 (project description) and Section 8.7 (hydrology and water quality) set forth considerable substantial evidence showing that the runoff performance standard is achievable and will be effective in reducing water quality impacts.

Comment 7-2b: General Permit fails to provide sufficient guidance as to how to model or measure compliance with the runoff performance standards. Therefore it unlawfully defers the development of this mitigation measure.

Response to Comment 7-2b: For the reasons stated in our response to comment 7-2a, we disagree with the assertion that the runoff performance standards are mitigation measures for the General Permit.

While not conceding that the runoff performance standards are mitigation measures for the General Permit, in response to comments received, the General Permit now includes additional guidance for determining compliance with the runoff performance standards including guidance provided by the commenter (inserted into Attachment A of the General Permit), which stated as follows:

> **"Further Specification of Performance Standards for Discharge**
>
> **Peak Storm Runoff:** The model developed to evaluate attainment of the peak storm runoff performance standard, as specified above, shall include and be consistent with all of the following:
>
> - Pre- and post-project peak runoff estimates shall be provided for each sub-watershed area that drains into a vineyard drainage outfall. The size of the sub-watershed area is dictated by the drainage area lying upslope of each drainage structure outfall directing runoff from a vineyard block.

- Pre- and post-project peak flow estimates shall also be quantified at all locations where runoff exits the property (e.g., swales, creeks, ditches).
- Numerical modeling shall include hydraulic computations that integrate routing of flow through drainage elements such as pipes, surface ditches, rock/grass-lined swales, sedimentation basins, etc. into the numerical rainfall-runoff model.
- Numerical modeling shall include and account for all types of runoff from roads that drain into modelled sub-watershed areas.
- Numerical modeling shall include routing of flow through proposed BMP structures that would be implemented to control erosion and/or attenuate runoff.
- BMP structures shall be designed to address predicted project hydraulic conditions, such as water depth and velocity.
- Similar to vineyard drainage elements, routing of flows through BMPs (e.g., flow control structures, energy dissipaters/outlet protection, rock lined ditches, check dams, sediment basins, slope drains, streambank stabilization structures, and gravel berms) may alter runoff rate, and therefore, shall be integrated into the model/hydrologic analysis.
- A comprehensive description of the modeling approach, methods, assumptions, and peak flow estimates shall be integrated into the erosion control plan."

Comment 7-2c: In scoping for the EIR, LRC requested that the EIR examine the extent to which measures implemented to control surface erosion may increase runoff and lead to erosion and sedimentation of the Napa River. The DEIR's discussion of this topic is insufficient due to legal errors and because its conclusions are not supported by substantial evidence.

Response to Comment 7-2c: As described in Response Comment 7-2a, the installation of engineered drainage is not a reasonably foreseeable compliance action at an existing vineyard and only reasonably foreseeable at a new/proposed vineyard in a manner that also achieves the General Permit's performance standards for storm runoff (see for example, DEIR, p. 34, footnote 11, and p. 63). Nevertheless, the DEIR discusses the potential impacts of engineered drainage on downstream channel erosion (DEIR, pp. 34-35, p. 63, pp. 245-247), and also incorporates by reference further discussion of this topic in the State of California (2013, pp. 20-24). Also, for the reasons stated in our response to Comment 7-2a, we disagree that the General Permit's performance standards for storm runoff are mitigation measures; there is no legal error.

Comment 7-2d: The DEIR also relies on the achievement of two performance standards to avoid significant runoff/sedimentation impacts from efforts to control surface erosion. "The first performance standard for [peak storm runoff in] new vineyards . . . is excellent in concept, but it and the performance standard for existing vineyards and the second performance standard for new vineyards (i.e., shall not cause or contribute to downstream increases in bed and/or bank erosion) are too uncertain and unspecified to reliably predict its achievement." The commenter questions the usefulness of monitoring protocols for bed and bank erosion. The commenter also challenges the assumption that the surface erosion standard will work; claiming that the assumption "is based on the DEIR's unlawful deferral of mitigation measures and is not supported by substantial evidence." Finally, the commenter expresses concern with the delegation of assessment and mitigation of increases of runoff to regulated landowners and their retained, private, third party Farm Plan certifiers.

Response to Comment 7-2d: For the reasons previously stated in our response to Comment 7-2a, we disagree that the General Permit's performance standards for storm runoff are mitigation measures.

While not conceding that the runoff performance standards are mitigation measures for the General Permit, as stated earlier as part of our Response to Comment 7-2b, in response to comments received on the General Permit, the General Permit has been revised and now includes additional guidance for determining compliance with the runoff performance standards including guidance provided by the commenter.

With respect to the surface erosion standard, as discussed in response to Comment 7-2b, an EIR may properly assume that a proposed project will be implemented as described and may make reasonable assumptions based on substantial evidence about future conditions without having to guarantee that these assumptions will remain true. (See *Environmental Council of Sacramento v. City of Sacramen*to (2006) 142 Cal.App. 4th 1018, 1035-1036.)

The comment concerning delegation to third parties is addressed in more detail in response to Comment 7-9.

Comment 7-3: The Draft EIR fails to assess impacts of BMPs that promote infiltration of runoff into the soil, that could increase subsurface storm flow, and consequently increase erosion and sedimentation. Specifically, the commenter cites detention basins as an example of a BMP that would infiltrate runoff into the soil, and further notes that where a detention basin was sited within a hillslope hollow (where natural subsurface stormflow already is concentrated), additional infiltration contributed from the storage of runoff in the detention basin could cause an increase in erosion both in the hollow (via increases in pore pressure within the soil), and/or within downstream channel reaches through

increases in storm runoff.

Response to Comment 7-3: We did not intend to suggest that a detention basin could be designed to allow infiltration into the soil within a swale or other sensitive or potentially unstable areas. Allowing uncontrolled infiltration into deep soils of variable permeability that typically occur within swales would be counter to sound professional practice by a registered Civil Engineer, because the lack of a foundation cutoff (and as needed seepage control) would present a significant potential for soil piping and/or sloughing of the embankments of the detention basin, which consequently could result in potential failure of the detention basin.

Elsewhere in the Hydrology and Water Quality Chapter in the DEIR (Impact 8.10, pp. 255-256), we present and describe the environmental review and engineering oversight that would occur for all detention basins (which are a type of dam), as part of the permit approval process that would occur by the local land-use authority, and also in some cases the California Department of Water Resources, Division of Safety of Dams):

> "Any detention basin with a height ≥ 25 feet and/or a storage capacity ≥ 50 ac-ft, would be subject to permit and inspection programs administered by the California Department of Water Resources, Division of Safety of Dams, developed "to prevent (dam) failure, to safeguard human life, and to protect property from damage" (CA Department of Water Resources, Statutes and Regulations Pertaining to Dams and Reservoirs, No Date). The Division of Safety of Dams has several programs to ensure that jurisdictional dams (height ≥ 25 feet and/or storage ≥ 50 ac-ft) are safe. Division engineers and geologists review dam site conditions, plans and specifications, and dam construction is contingent upon agency approval. During construction, division staff conducts site visits to confirm that the work is consistent with approved plans and specifications. Following construction, dams are inspected annually to confirm that the dam is safe.
>
> In addition to state review and approval of jurisdictional dams, local government reviews and approvals also are required for smaller dams in Sonoma County and Napa County. Sonoma County requires that plans for a detention basin be prepared by a licensed civil engineer, and that the California Division of Safety of Dams "Guidelines for Small Dams" (Division of Safety of Dams, 1993) be followed in design of such structures, in addition to County requirements for minimum freeboard and compaction of earthen fill (Sonoma County Grading, Drainage, & Vineyard & Orchard Site Development Ordinance, Section 11.16.030). In Napa County, to construct a detention basin, a grading permit would be required from the Engineering Services Division, plans would have to be stamped by a licensed civil engineer and soil engineering and geology reports also would be required."

Finally, because the detention basins attenuate storm runoff increases, flow from the basins would not contribute to downstream incision.

No changes were made in response to this comment.

Comment 7-4: "The DEIR concludes that impacts on groundwater are less-than-significant, based entirely on the DEIR's assumption that the [General Permit] will not increase runoff. As discussed in sections 1 and 2 above, this assumption reflects multiple failures to proceed in the manner required by law, and is not supported by substantial evidence."

Response to Comment 7-4: While we agree that almost all of the water that is infiltrated into the soil is routed through a vineyard via shallow subsurface storm flow during storm periods (as noted in Exhibit 4a, pp. 2-8), and/or is lost via evapotranspiration, and this would be the case prior to and following vineyard development. As noted elsewhere in your comments (Exhibit 1, "Recharge to the Sonoma Volcanics Groundwater Aquifer," pp. 7-8), deep percolation is quite limited within hillslope areas. Therefore groundwater recharge rates, even at sites underlain by highly permeable bedrock types (like the Sonoma Volcanics Formation) only correspond to a very small fraction of average annual precipitation, approximately 2-to-4 percent. Furthermore, we note your opinion is consistent with the "Napa County Groundwater Conditions and Groundwater Monitoring Recommendations" report (Luhdorff and Scalmanini, 2011), that is incorporated by reference into the draft EIR, and which states that:

> "Outside of the Napa Valley Floor, percolation of surface water [into stream channels and/or alluvial fans] appears to be the primary source of recharge."
>
> (Luhdorff and Scalmanini, 2011, p. 33)

Also, as described in the draft EIR (Section 8.7, pp. 245-247), whether or not engineered drainage could contribute to a local reduction in groundwater recharge (in cases where the subsurface drainage pipes are perforated[7] and therefore present the potential to intercept some of the subsurface flow within a portion of the vineyard), engineered drainage is not a reasonably foreseeable compliance action at any existing vineyard, and is only reasonably foreseeable at some new vineyards as part of the broader application of a suite of BMPs, that are employed to attain the performance standard for no-net increase in storm runoff. Considering all of the above, we conclude that reasonably foreseeable actions would not impact groundwater recharge, and/or groundwater levels in aquifers located within the project area.

While not conceding that the groundwater resources analysis contained in the draft EIR is deficient, please note (as stated in our Response to Comment 7-2d), the General Permit (Attachment A) has been revised to add all of the guidance for hydrologic modeling suggested by the commenter.

[7] Because the only other opening in these pipes are at the ground surface, where inflow would be the result of Horton overland flow, generated as a consequence of the effects of vineyard development and cultural practices on vegetation cover and soil attributes, and not as a result of installation and/or operation of the drainage pipes).

Considering this additional guidance, localized spatial and/or temporal concentrations of runoff would be accounted for in the hydrologic model, and, where runoff was predicted to be concentrated, additional BMPs would need to be employed at a new vineyard to sink, spread, or slow the runoff. As a result, akin to the situation prior to development, only a small percentage of the water that is sunk, spread, or slowed, would percolate deeply into the ground and contribute to groundwater recharge. Therefore, considering the whole of the actions taken at any vineyard in order to comply with the General Permit, we conclude that there would be no impact to groundwater resources.

Comment 7-5: The Project Description is incomplete and its analysis of impact unlawfully segmented because it fails to describe the farm plans and potential impacts of their implementation.

Response to Comment 7-5: The draft EIR includes as Appendix A, the July 2016 draft of the General Permit, which includes avery detailed description of the required specifications of a Farm Plan (Attachment A of the General Permit). Furthermore, Farm Plans also are described in the draft EIR as part of the project Description (DEIR, pp. 52-53).

However, whether or not the Farm Plans are included in the Project Description is immaterial because it is the evaluation of reasonably foreseeable actions that would be taken to comply with the General Permit that is required under CEQA. While the Farm Plans *report* on the types of actions taken or predicted to occur at a specific site, they, in and of themselves, do not have environmental impacts. Put simply, the Farm Plans give a timeline for implementation of compliance actions. The DEIR already includes an extensive description of all reasonably foreseeable compliance actions (DEIR, pp. 53-81) and also of potential project impacts and or project contributions to cumulatively considerable impacts (DEIR, Chapters 2 through 9). The DEIR makes conservative assumptions, including unrealistic assumptions that all farms would undertake the most impactful BMPs simultaneously.

In almost all cases, Farm Plan implementation would involve only a subset of the compliance actions discussed and evaluated in detail in the DEIR. At all of these Vineyards Properties, CEQA will be satisfied because environmental impacts have been considered and Mitigation Measures identified, which Vineyard Properties will utilize, as applicable. In the unusual case where compliance actions (implementation actions under a Farm Plan for a specific property) are outside of the reasonably foreseeable actions defined by the DEIR, and/or where a compliance action also is subject to issuance of another permit, those aspects of Farm Plan implementation would also be subject to project-specific CEQA compliance. The DEIR has informed the public of the potential significant effects of compliance actions. There is no additional CEQA analysis that must occur at the Farm Plan stage. The General Permit does not create a CEQA shelter.

Comment 7-6: **The DEIR discussion of all performance standards is not supported by substantial evidence**. The Board is legally required to regulate

sediment discharges from vineyards to achieve the Napa River and Sonoma Creek sediment TMDLs, consistent with the Clean Water Act and Basin Plan. However, "as discussed above, and in Mr. Kamman's letter, the proposed General Permit will not achieve the objectives of the Clean Water Act or the Basin Plan. Therefore any system of regulation that the Board adopts that fails to achieve these objectives causes environmental harm as compared to adoption of a system of regulation that does achieve these objectives. But the DEIR fails to identify this as a significant impact and to discuss feasible alternative regulatory approaches that would achieve these objectives."

Response to Comment 7-6: We respond first by noting, as stated in the draft EIR, "The fundamental project objective is to implement the Napa River and Sonoma Creek sediment TMDLs including achievement of Vineyard Property discharge performance standards for sediment and storm runoff, and ultimately to meet the TMDLs' sediment load allocations and targets … (Draft EIR, Project Objectives, p. 45)." We fundamentally disagree with the commenter's assertion that the performance standards will not achieve the objectives of the Clean Water Act and the Basin Plan. The calculations and conclusions are supported by ample data and scientific analysis.

The General Permit includes performance standards either meet or exceed the level of sediment discharge control specified in the Basin Plan. Therefore, these performance standards are expected to achieve the sediment load reductions for vineyards that are specified in the adopted sediment TMDLs.

For example, the General Permit performance standard for "soil erosion in the farm area" is substantively identical to the perform standard for this source, as specified by the Napa River sediment TMDL (Water Board, 2009b, p.10; draft General Permit, p. 11), and is equivalent or superior to performance standard for this source as specified by the Sonoma Creek sediment TMDL (Water Board, 2008b, p. 11).

The General Permit performance standard for storm runoff control at existing hillslope vineyards to "not cause or contribute to downstream increases in bed or bank erosion" (General permit, p. 11) is identical to the performance standard for hillslope vineyard runoff as specified by both the Napa River and Sonoma Creek sediment TMDLs (Water Board, 2009b, p.10; Water Board, 2008b, p. 11). Furthermore, the General Permit performance standard for storm runoff control at new hillslope vineyards – "peak storm runoff shall not be greater than pre-development" - is more protective/restrictive than the Basin Plan, which called for actions to "attenuate significant increases in storm runoff."

The other category of sediment control at vineyard properties called for by the sediment TMDLs contained in the Basin Plan is for roads (Water Board, 2008b, p. 11; Water Board, 2009b, p. 11). The General Permit's performance standards define retrofits to existing unpaved roads, and

design specifications for all new roads, which are predicted to reduce road sediment discharge to levels below the quantitative performance standard specified by the Napa River sediment TMDL (≤ 500 cubic yards per mile per 20-year period, Water Board 2009b, p. 11), and that are superior to the qualitative performance standard for roads specified by the Sonoma Creek sediment TMDL (Water Board, 2008b, p. 10). For example, the baseline value for percent hydrologic connectivity of unpaved roads in the two watersheds is 50 percent of the road length. The General Permit, by requiring that hydrologic connectivity be ≤ 25 percent (draft General Permit, p. 11), effectively reduces sediment delivery by surface erosion processes acting on the road prism at existing unpaved roads by 50 percent-or-more; at new/proposed roads, the performance standards for storm proofing, effectively eliminate all controllable sediment discharge from surface erosion processes acting on the road prism. Similarly, the General Permit's performance standards to address diversion and plug potential at all existing or new vineyards are predicted to reduce sediment discharge associated with crossing erosion and/or diversion by 50 percent-or-more. These actions in total would result in Vineyard Property road sediment discharges being below the quantitative performance standard for roads (≤ 500 cubic yards per mile per 20-year period) specified by the Napa River sediment TMDL, and as stated above, are superior to qualitative performance standards for this source, as specified by the Sonoma Creek sediment TMDL.

The performance standards for sediment discharge and storm runoff control contained in the proposed General Permit are equivalent or superior to the performance standards specified by the Sonoma Creek and/or Napa River sediment TMDLs.

Finally, the commenter appears to suggest that there is some requirement under CEQA to evaluate an alternative to the project that assumes the project fails. There is no such requirement. As discussed above, an EIR may properly assume that a proposed project will be implemented as described and may make reasonable assumptions based on substantial evidence about future conditions without having to guarantee that these assumptions will remain true. (See *Environmental Council of Sacramento v. City of Sacramento* (2006) 142 Cal.App. 4th 1018, 1035-1036.) To the extent the commenter would have the Water Board evaluate other regulatory approaches that would achieve objectives, the commenter has not identified what those approaches may be.

Comment 7-7: **The DEIR's discussion of Alternative 3 is not supported by substantial evidence**. The DEIR's discussion of "Alternative 3: Enroll Vineyards > 5 acres throughout Project area, except those Upstream of Reservoirs" states:

> "This alternative would be as effective as the Proposed Project in achieving the fundamental objective because the Napa River sediment impairment is related to elevated amounts of sand in the bed of the Napa River and in tributary reaches that provide potential habitat for anadromous salmonids. Any sand

> discharged from land areas located upstream of the municipal reservoirs is trapped in the very large reservoirs, and therefore is not discharged into the Napa River, and/or into tributary reaches that provide habitat for anadromous salmonids. (DEIR, p. 284.)

These assertions are simply false. For example, a recent EIR for the Walt Ranch Vineyard Conversion Project recognizes that reservoirs in the Napa drainage trap coarse sediments, but that fine sediments pass through. The DEIR's analysis of the comparative impacts and benefits of Alternative 3 is not supported by substantial evidence and the EIR fails to analyze a reasonable range of project alternatives.

Response to Comment 7-7: The comment conflates the evaluation of a reasonable range of alternatives (which refers to a discussion of various alternatives) with the appropriate analysis of alternatives. To the extent the commenter wishes analysis of different alternatives, that is discussed in response to Comment 7-8. This response focuses on the data supporting the analysis of Alternative 3.

The Walt Ranch EIR does not correctly summarize the *Napa River Sediment TMDL and Habitat Enhancement Plan* (Napolitano et al., 2009 a.k.a. Water Board, 2009b). In summary, we stated that:

a) Tributary reservoirs trap and retain *all of the sand* discharged from upstream land areas (Water Board, 2009b, Table 7a, p. 57);

b) *Fine sediment impairment is based on documentation of low permeability values* at potential spawning sites for anadromous salmonids in gravel-bedded channel reaches (Water Board, 2009b, pp. 8-9); and

c) Permeability is inversely related to fine sediment concentration in the streambed, *primarily sand grains ≤ 1 mm* (Water Board, 2009b, p. 63).

We also make the point therein that "*very little silt or clay is deposited* in the gravel-bedded reaches of the Napa River and its tributaries" (Water Board, 2009b, Table 4, p. 28). Please also note that this is the typical case for gravel-bedded channels throughout the world (see for example, Lisle, 1995, Figure 1; Parker, 2008, Figure 3.11).

Furthermore, Alternative 3 is defined as follows:

> "[A]ll Vineyard Properties within the project area where ≥ 5 acres are planted in vineyard would be enrolled, except for those that drain into five municipal watersheds that are located within the Napa River watershed[83].
>
> [83] These reservoirs are Kimball Canyon Reservoir, Bell Canyon Reservoir, Rector Reservoir, Lake Hennessey, and Milliken Canyon Reservoir."

The five municipal reservoirs referenced in Alternative 3 have high-to-very high ratios of reservoir storage capacity-to-inflow (i.e., ac-ft capacity per ac-ft annual inflow). Based on review of West Yost and Associates (2005a, Table 2, Comparison of Reservoir Storage Capacity to Average Annual Inflow) and Brune (1953, Figure 6, Trap Efficiency as Related to Capacity-Inflow Ratio), we infer the following estimated values for trap efficiency for all sediment sizes in these five municipal reservoirs:

	Trap Efficiency (all sediment sizes)
Kimball Reservoir	78-to-94%
Bell Canyon Reservoir	93-to-99%
Conn Reservoir	96-to-100%
Rector Reservoir	95-to-100%
Milliken Reservoir	92-to-99%

Therefore, considering the total trap efficiencies for all sediment sizes listed above, we infer that all sand, and most of the silt and clay that is delivered from upstream sources, would be deposited and retained in these large deep municipal reservoirs.

Comment 7-8: "Every single project alternative mentioned in the DEIR, including project alternatives rejected for detailed discussion and the project alternatives accepted for detailed discussion, involves less regulation. Not one involves tighter regulation. This is patently unreasonable."

Response to Comment 7-8: As stated in the draft EIR (p. 275):

> "CEQA Guidelines section 15126.6, subdivision (c) recommends that an EIR describe the rationale for selecting each of the alternatives. A reasonable range of alternatives is considered for this analysis. The following factors were considered in identifying a reasonable range of alternatives to the project:
>
> - Does the alternative accomplish the fundamental, and all, or most of the secondary (other) project objectives?
> - Is the alternative feasible from an economic, environmental, legal, social, and technological standpoint?
> - Does the alternative avoid or lessen any significant negative environmental effects of the project?"

We did not consider alternatives that would regulate smaller vineyards because regulation of vineyards smaller than 5 acres is not necessary in order to achieve the fundamental project objective, which is:

> "to implement the Napa River and Sonoma Creek sediment TMDLs to achieve vineyard property performance standards for sediment discharge and storm runoff." (Draft EIR, p. 45)

As noted in Response to Comment 7-6 above, the General Permit's Performance Standards for Vineyard Property sediment discharge and storm runoff are equivalent or superior to the Performance Standards in the adopted Napa River and Sonoma Creek sediment TMDLs contained in the Basin Plan. Furthermore, under the proposed project, parcels where a 5 acre-or-larger vineyard is planted would be enrolled in the General Permit. Under the proposed project, we estimate that approximately 42,900-of-45,800 acres of land planted in vineyards in the Napa River watershed would be enrolled in the permit (Matt Lanborn, Napa County, Department of Planning, Building, and Environmental Services, 2016, unpublished GIS calculations), or approximately 94 percent of the total planted area[8]. As such sediment discharges associated with vineyards, through regulation of parcels where a 5 acre-or-large vineyard is planted, are expected to achieve the level of sediment control specified in the adopted TMDLs.

Furthermore, enrolling vineyards smaller than 5 acres *would increase* potentially significant environmental effects of the project. The magnitude of potentially significant environmental impacts described in the draft EIR would be increased commensurate with the increase in vineyard and parcel acreage enrolled, and therefore the footprint of the compliance actions. The CEQA Guidelines clearly state that an "EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation." (Cal. Code Regs., tit. 14, § 15126.6.) The range of alternatives shall include those that "could avoid or substantially lessen one or more of the significant effects." (*Ibid.*) The alternative the commenter suggests, a lower threshold vineyard size, would not lessen or reduce potentially significant environmental effects. Instead, that alternative would slightly increase impacts, and therefore was not considered. No changes were made in response to this comment.

Comment 7-9: "The DEIR should discuss alternative regulatory approaches in which private third party certifiers play no role or in which each "covered" vineyards must submit an individual Report of Waste Discharge application rather than enrolling in a General Permit."

Response to Comment 7-9: Whether or not Third-Party Programs have a role in performing a technical review of farm plans is immaterial to the criteria under CEQA for alternative selection. Instead this is a decision that relates to the Water Board's interest in leveraging local technical assistance to achieve the performance standards for discharge in a timely and cost effective manner. Furthermore utilization of Third-Party Programs for this purpose is consistent with the *State Nonpoint Source Control Policy*.

[8] Mapping to delineate the footprints of the planted vineyards in the Sonoma Creek watershed is not available. In the absence of mapping specific to the Sonoma Creek watershed, we have assumed that vineyards smaller than 5 acres comprise a similar fraction of the total planted acreage of vineyards in the Sonoma Creek watershed, as they do in the adjacent Napa River watershed.

With regard to the option of regulating each vineyard under individual WDRs, note that California Water Code, section 13263 (i), authorizes the Water Board to prescribe *general waste discharge requirements* for a category of discharges, if the discharges are produced by the same or similar operations; involve the same or similar types of waste; require the same or similar treatment standards; and are more appropriately regulated under general waste discharge requirements. The types of vineyards that would be enrolled under the General Permit meet the criteria specified by the Water Code (see Sections 1 and 2, of the draft EIR). Considering an alternative, where each vineyard would submit a report of waste discharge, and then be regulated through individual WDRs, would be much less efficient administratively (e.g., we estimate that there are more than 1600 vineyard parcels enrollable under the General Permit in the Napa River watershed alone; see, Lanborn, 2016) and hence would unnecessarily extend the duration of water quality impairment. Therefore, such an alternative was not considered because it would not achieve the fundamental project objective.

Although not directly related to this comment, we note that to avoid any confusion regarding the role of Third-Party Programs as related to CEQA, the term "certified" as related to the Farm Plan required under the General Permit, has been replaced with the term "verified," which is defined therein as follows:

> "Verified means that an approved Third-Party Program has coordinated a technical review of the Farm Plan by a Qualified Professional who has signed - the Farm Plan, a verification form, or a letter - to indicate that she/he concludes that upon full implementation the Farm Plan would achieve all applicable performance standards for sediment and storm runoff control. Although a Verified Farm Plan receives technical review, it remains the Discharger's responsibility to ensure the Farm Plan is implemented to achieve all applicable performance standards for discharge. Third-Party Program verification does not constitute an approval of the Farm Plan."

Comment 7-10: Thank you for your attention to these comments.

Response to Comment 7-10: Comment noted.

Comment Letter #8
River Run and Bean Vineyards
September 14, 2016

Comment 8-1: The commenter appreciates the opportunity to submit comments on the draft EIR.

Response to Comment 8-1: Comment noted.

Comment 8-2: The project description is inadequate. Although the draft EIR (DEIR) lists numerous reasonably foreseeable compliance actions, it does not provide the contextual information necessary to inform readers of the actual scope of the project and its environmental impacts. The DEIR must disclose and evaluate the scale and extent of the stated physical changes likely to result from the proposed General Permit. For example, the DEIR identifies engineered subsurface drainage pipes as a likely compliance action and also indicates that many vineyards already use drainage pipes to control erosion. But without further quantification or explanation the reader can only guess to what extent installation of new pipes will occur.

Response to Comment 8-2: We disagree. As a preliminary note, we have noted throughout the DEIR that engineered drainage may be installed as a part of installing a new vineyard – which is not what the General Permit authorizes – but is unlikely to be a reasonably foreseeable compliance action in response to the General Permit. To the extent that there will be any new engineered drainage installed, and to the extent it already exists, the General Permit prohibits its implementation in a manner that would increase runoff.

As required by Title 14 of the California Code of Regulation, Section 15124, the draft EIR includes an accurate and complete project description including each of the following elements:

a) Project location and boundaries (DEIR, p. 45-46);
b) Project objectives (Section 2.2, p. 45);
c) Description of types of vineyard properties that would be regulated (DEIR, pp. 47-50);
d) Mapping of the current locations of vineyard properties in the project area (DEIR, p. 48);
e) Description of the performance standards for discharge (DEIR, pp. 50-52);
f) Description of project characteristics (DEIR, p. 53);
g) Description of reasonably foreseeable actions (DEIR, pp. 53-81); and
h) Discussion of intended use of the EIR (DEIR, p. 82).

Please also note as described in detail in the draft EIR (pp. 53-81), almost all reasonably foreseeable compliance actions, including best management practices (BMPs) 1-9 and BMPs 13-26 in all cases would be located within the footprint of existing vineyards and existing

unpaved roads, or following adoption of the General Permit, within the footprint of new vineyards and/or new roads that are permitted by the local land-use authority. Also, as described in the draft EIR, these previously developed areas undergo regular and intensive disturbance of vegetation cover and/or earth moving, as part of the environmental baseline (for example, DEIR, pp. 31-36).

The extent and specific locations of the compliance actions is relevant to impact analysis where the nature of environmental effects of the compliance actions would differ from the baseline condition.
The only reasonably foreseeable compliance actions that wouldn't be located within developed areas are BMP-10 (detention basins or constructed wetlands), which in some cases could be constructed in adjacent undeveloped areas, and BMPs 11-12 (soil bioengineering to control gully, channel, or landslide erosion), which in all cases would occur in undeveloped natural areas.

Consistent with the statutory requirements specified in CEQA Guidelines, section 15187, subdivision (a)[9], the location and extent of reasonably foreseeable compliance actions was specified in the applicable sections of the impact analyses contained in the draft EIR, in those cases where such specification was relevant to evaluation of potential environmental effects, and where such specification would not involve engaging in speculation or conjecture. Furthermore, for the specific example cited by the commenter (i.e., where and how much engineered drainage could be installed), the draft EIR does provide this type of specification (see for example, DEIR, Impact 8.2, pp. 245-247):

> "In evaluating the potential impacts of engineered drainage on the hydrology of the site, we note that <u>if engineered subsurface drainage pipes are not already in-place, few if any existing vineyards would be expected to install subsurface drainage pipes</u> following adoption of the General Permit. This is because, with the exception of timing installation with a replant, earth moving and excavation associated with installation of subsurface drainage pipes would be very disruptive and quite damaging to an existing vineyard. Also, at the time of a replant, if engineered drainage was installed, it would have to meet the performance standards for soil erosion ***and*** storm runoff. At existing hillslope vineyards discharging into a gully, landslide, and/or head-cutting or down-cutting channels, in order to attain the performance standard for storm runoff, additional BMPs to sink, spread, and/or slow runoff would need to be implemented (as technically feasible and economically practicable). Therefore, the net result, as compared to the baseline, would be to enhance groundwater recharge.
>
> <u>At new/proposed vineyards however, it is possible that engineered drainage could be adopted at sites as part of an</u>

[9] Title 14 of the California Code of Regulations, section 15000, *et seq.*

overall approach/strategy to control vineyard erosion. Based on projections contained in the General Permit updates for Napa and Sonoma counties, as many as 2000 acres of additional vineyards could be planted in the Sonoma Creek watershed, and up to 6,000 acres in the Napa River watershed[63]. Therefore, it is possible that subsurface engineered drainage pipes could be installed on several thousand acres-or-more of new vineyards. However, because all new/proposed hillslope vineyards ***also*** must meet the performance standards for storm runoff, at sites where engineered drainage is employed, at worst, the effect on groundwater recharge would be neutral (because if peak runoff does not increase, groundwater recharge does not decrease). As a result, engineered drainage facilities that do not meet the storm runoff performance standard are not a reasonably foreseeable means of compliance."

Footnote 63 referenced above:
"[63] The General Plan update for Sonoma County (provides a projection for additional vineyard development from 2002 through 2020 in the Sonoma Creek watershed, which is ≤ 1500 acres (Sonoma County, 2006). Lacking more recent projections, we assume this rate (approximately 100 acres per year) applies also to the 20-year period following adoption of the General Permit. The Climate Action Plan for Napa County (ICF, 2012) includes an estimate of approximately 7500 aces of additional vineyard development throughout Napa County between 2005 through 2030, or about 300 acres per year. Because this estimate is not further subdivided geographically, and lacking more recent projections, we assume this rate (300 acres per year) also will apply to the 20-year period following General Permit adoption, and that all of the project vineyard development would occur in the Napa River watershed. Our assumptions likely overestimate the acreage of projected future vineyard development within the project area that could be enrolled in the General Permit."

In summary, the location and extent of engineered drainage and reasonably foreseeable compliance actions were specified in the draft EIR, as applicable to evaluation of potential environmental effects.

Comment 8-3: "The various temporal limitations on compliance activities found throughout the DEIR could concentrate such work into a short window of time that corresponds to the wine grape harvest, yet this result and its attendant environmental consequences are not addressed in the description of the project or in the environmental analysis. As a result … the analysis … is not based on substantial evidence. . . . The concentration of work during the harvest period has implications for potential impacts to air quality, biological resources, water quality, and population/growth inducement, but the DEIR does not acknowledge or analyze this issue, and thus does not fulfil CEQA's purpose of informing decision-makers and the public of the environmental consequences of the proposed Vineyard WDRs."

Response to Comment 8-3: Contrary to the assertion by the commenter, the temporal limitations on compliance actions included in the draft EIR are in fact elements of mitigation measures adopted to reduce potentially significant impacts to Biological Resources, and/or to Water Quality and Hydrology, to a less than significant level (see for example, DEIR, mitigation measures BR-2 and BR-4, pp. 189-191, and 250).

With regard to effects on air quality, assuming compliance actions would be concentrated into a more narrow seasonal time window that would not change any of the findings with regard to potential impacts of the project on Air Quality. Impact 5.1, 5.2, and 5.4 would remain potentially significant and unavoidable because Water Board still would not have oversight of the implementation of proposed mitigation measures (so we conservatively concluded that the impacts would remain significant and unavoidable), and Impacts 5.3 and 5.5 would remain less than significant for the exact reasons that already are stated within the draft EIR.

Also, see Response to Comment 8-9 (e.g., there is no evidence that "substantial" numbers of additional workers would be required when compliance work overlaps with the grape harvest). Road erosion control actions would occur over a ten-year implementation period and these requirements only apply to hillslope vineyard properties where we estimate that approximately 100 miles of road could be treated (or an average of 10 miles per year of roads where construction activities would occur). For context regarding work force requirements to complete the road erosion control efforts, please note that the Napa County RCD completed 3.85 miles of road erosion control treatment work on four private properties in the Napa River watershed between August and October of 2010, working with a single road erosion contractor (Napa RCD, 2010, pp. 1-6). Therefore, we conclude that potential impacts of the project on population/growth inducement remain less than significant regardless of the fact that some of the compliance actions may overlap with the grape harvest period.

Comment 8-4: "While Chapter 2.4 of the DEIR notes that CEQA requires a general description of the project's technical, economic, and environmental characteristics (DEIR, p. 53), that chapter includes virtually no economic information. Economic information is particularly necessary for this EIR because potential conversion of farmland due to the project's economic consequences has already been flagged … as a matter of considerable local concern. . . . The EIR does provide a summary of economic considerations in Chapter 3.3, but the summary is both too conclusory and too thin to provide a basis for analysis of environmental impacts driven by financial concerns. . . . For example the DEIR sets forth the baseless assumption that because some vineyards have been able to implement BMPs, it should not be an economic burden for the vineyards that have not implemented BMPs to do so. (DEIR, p. 87.) But this ignores the possibility that it is the very economic burdens of implementing BMP's that have prevented some vineyards from doing so. . . ."

Response to Comment 8-4: See response to Comment 5-5, concerning the economic analysis.

Comment 8-5: The DEIR indicates that the primary purpose of the Vineyard WDRs is to address regulatory gaps related to road-related erosion and storm runoff increases from hillslope vineyards, but the DEIR does not set forth the information regarding the baseline conditions of roads and hillslope vineyards necessary for a meaningful environmental analysis. The DEIR must include baseline information, such as the estimated number and/or mileage of roads, the acreage of hillslope vineyards as compared to valley floor vineyards, and the scope and nature of existing vineyard operations. The DEIR must also explain why vineyard roads are different and more heavily regulated than other non-vineyard roads. Without this information, the DEIR cannot properly assess the potential impacts of the project, and thus cannot inform decision-makers or the public of the environmental consequences of approving the Vineyard WDRs.

Response to Comment 8-5: The DEIR does not state that the primary purpose of the General Permit is to address regulatory gaps related to road-related erosion and storm runoff increases from hillslope vineyards. Instead it states that:

- The fundamental project objective is "to implement the Napa River and Sonoma Creek sediment TMDLs including achievement of vineyard property performance standards for sediment and storm runoff …" (DEIR, Project Objectives, p. 45).

- Local regulatory and/or voluntary programs do not effectively control all potentially significant sediment sources associated with vineyard properties, including road-related erosion and concentration of storm runoff at hillslope vineyards (DEIR, Sections 1.2 through 1.4, pp. 36-40); and

- The General Permit "would require actions to control sediment discharges and storm runoff increases from farms and roads, and also to control pesticide and nutrient discharges from farms" (DEIR, Section 1.0).

In response to the assertion that the draft EIR does not describe baseline conditions with regard to roads and vineyards, this information is presented in the draft EIR. For example, in Section 1.0, Existing Physical Conditions at Vineyard Properties in the Project Area, the draft EIR notes that within the project area there are 162,000 of vineyard properties, 59,000 acres of which are planted in wine grapes, and that an estimated 109,000 acres of vineyard properties, 54,000 acres of which are planted in wine grapes would be enrolled in the General Permit (DEIR, p. 31). Also, therein the DEIR estimates that vineyard properties typically include approximately 4.5 miles of road per square mile of Vineyard Property (DEIR, p. 32). Furthermore elsewhere in this section, the draft EIR references its Appendix B (GIS analysis to support evaluation of potential impacts), where additional information is

presented, including the estimated vineyard acreage planted at valley floor and also hillslope sites. Also, the scope and nature of vineyard and road development and management on erosion and storm runoff are described in detail on pp. 32-36 of the draft EIR.

In response to the comment asking for better explanation of why vineyard roads are different and more heavily scrutinized and regulated than other non-vineyard roads, unpaved roads on vineyard properties are not treated differently than those found on other large public or private lands in the project area. As listed in Table 9-2 of the draft EIR, throughout the project area (i.e., the Napa River and Sonoma Creek watersheds) the Water Board already is regulating sediment discharge from unpaved roads that are located on rangeland properties through its previously adopted permit. In future years, the Water Board staff also anticipates developing and adopting permits to regulate road sediment discharge within the project area for parks and open space, and for rural residential properties.

Comment 8-6: "The DEIR concludes that the project will have a less-than-significant impact with respect to conversion of farmland to non-agricultural uses. (DEIR, p. 111.) This conclusion is not supported by analysis or evidence. In general it is clear that the loss of productive farmland could occur either directly or indirectly due to the compliance activities. . . . Given this impact to agriculture and agricultural lands, the DEIR should acknowledge that 'the loss of productive farmland may occur' … and acknowledge that such impacts do not qualify as 'less-than-significant.' More specifically, the DEIR's conclusion that the BMPs listed in the DEIR are 'compatible' with agricultural production (DEIR, p. 111) does not answer the question of whether the BMPs will result in the conversion of farmland. Taking lands currently in agricultural production and turning them into riparian lands, vegetative setbacks, or buffers amounts to the conversion of farmland to non-agricultural use that should be analyzed in the DEIR.

The analysis of potential conversion of farmland due to the costs of compliance is also inadequate, and does not support the 'less-than-significant' determination. It is not clear whether the analysis of the costs of compliance includes the costs various mitigation activities that landowners will need to implement. Even if those costs are included, the DEIR's determination that compliance activities do not pose an economic burden that could lead to conversion because some compliance activities yield long-term cost savings leaves open the possibility that the short-term capital costs of the compliance activities will drive growers out of business, and the DEIR does not address that possibility in any meaningful way. In addition, the DEIR fails to address local factors that could propel conversion of farmland, such as demand for additional housing. Without such information, the conclusion that financially burdened growers will simply sell their property to another grower cannot stand."

Response to Comment 8-6: See response to Comment 5-5.

Comment 8-7: "The flaws in the DEIR's description of the project and environmental baseline render the DEIR's analysis of impacts to air quality, biological resources, and hydrology and water quality inadequate. For example, because the DEIR does not directly acknowledge that compliance activities will be concentrated into a short period of time that overlaps with the wine grape harvest and crush, the DEIR fails to analyze the impacts of such concentration. In addition, the DEIR fails to recognize that the recommended regulation might not be needed if other regulated entities, such as some of the local wastewater treatment facilities, were required to comply with their wastewater discharge permits, which maybe causing impacts worse than those presupposed from vineyards."

Response to Comment 8-7: Please see Responses to Comments 8-2 and 8-3.

Comment 8-8: "The analysis of cumulative impacts to agriculture and forestry resources is non-existent. . . . The apparent reason for this omission is the conclusion that local land use regulations protect agricultural lands. This conclusion is not adequate. The DEIR must examine whether the activities needed to comply with the Vineyard WDRs will, when added to existing and expected future regulations on the same lands, will contribute to the conversion of farmland either by using farmland for compliance activities, such as constructing artificial wetlands, or by creating economic burdens that will drive wine grape growers out of business."

Response to Comment 8-8: See Responses to Comment 1-4 and 5-5. No commenter has provided any specific evidence that any farmer would be forced to go out of business as a result of implementing the General Permit. Nor has any commenter provided any support for the proposition that leaving an area fallow is conversion (as opposed to the common interpretation of conversion, which implies urbanization). See also Response to Comment 1-2 and note the additional proposed changes to address economic impacts as a result of the General Permit. The DEIR adequately addressed cumulative impacts of the General Permit on agriculture. The proposed project would not make cumulatively considerable contribution to a significant cumulative impact on agriculture.

Based on a review of related projects (as specified in the DEIR, Table 9-1) and a review of the EIRs for the General Plan Updates for Napa County and Sonoma County, the only potentially significant and unavoidable impact to Agriculture that has been identified as a consequence of potential future development in Napa or Sonoma County would be related to potential conflicts with existing zoning for agricultural use or Williamson Act Contracts (Napa County, 2007, 4.1-30 and 4.1-31). However, as indicated in the draft EIR, the General Permit

would not conflict with existing zoning for agricultural use or a Williamson Act contract (DEIR, Impact 4.2, pp. 112-113).

Also, please note in response to this comment that the following error in Table E-1 of the draft EIR has been corrected to match the analysis contained in Section 4.2, and also as stated in summary Table E-1 (to avoid confusion in this matter):

Chapter	Resource Category	Mitigation Measures	Significance Before Mitigation	Significance After Mitigation
4	**Agriculture and Forestry (cont.)**			
	Impact 4.2: Compliance with the General Permit at Vineyard Properties would not conflict with existing zoning for agricultural use, or a Williamson Act contract. Compliance actions under the General Permit would not require a change in existing zoning for agricultural use, or a Williamson Act contract. Implementation of vineyard BMPs to comply with the General Permit would not conflict with existing agricultural zoning or any aspect of a Williamson Act contract because General Permit compliance will not materially change the primary agricultural activity on the parcels that benefit from Williamson Act contracts. As described above under discussion of Impact 4.1, compliance with the General Permit will not result in any amount of land permanently converted or committed to urban or other nonagricultural uses and were shown as agricultural land on Important Farmland Series maps maintained by the Department of Conservation (California Department of Conservation, 2004).	None required. Direct and indirect impacts are less than significant.	~~LS~~ NI	NA

Comment 8-9: "Section 11.1, 'Growth Inducing Impacts,' acknowledges that the Vineyard WDRs will have an effect on population growth and states, in a conclusory fashion with no reference to a threshold of significance, that this acknowledged impact will be 'less than significant.' The discussion of growth inducement must state a threshold of significance and explain why or why not the project meets that threshold. In the context of this project, and due to the concerns stated above regarding the temporal limitations on compliance activities, the analysis of growth inducement should include information specifically regarding the need for growth to accommodate additional workers when compliance work overlaps with the wine grape harvest."

Response to Comment 8-9: See responses to Comments 8-2 and 8-3 regarding the impact of the temporal limitation on compliance activities and the projected population growth. The DEIR properly evaluated growth-inducing impacts under CEQA. The CEQA Guidelines treat growth-inducing impacts differently than significant environmental impacts. No significance conclusions about growth-inducing impacts are required; therefore no threshold of significance is required. CEQA Guidelines section 15126.2(a) states: it "must not be assumed that growth in any area is necessarily beneficial, detrimental or of little significance to the environment."

The Initial Study Population and Housing section appropriately applied significance thresholds to conclude that the project would not induce substantial population growth. No commenter has provided and staff is unaware of any substantial evidence that substantial numbers of additional workers would be required when compliance work overlaps with the grape harvest, such that substantial population or housing growth would be induced.

Comment 8-10: General Comments -

- There is a heading for Table 2-2 on page 51, but no table.
- We suggest adding "Groundwater Sustainability Agency approvals" to the list of potential agencies that may utilize the EIR.

Response to Comment 8-10: Table 2-2 includes all of the information contained beneath the Headers – Stream Crossings and Road Surface Drainage that follow directly below the title "Table 2-2," on pp. 51-52 of the draft EIR. Also, in response to the comment, the list of potential agencies that may utilize the EIR has been revised in the draft EIR to read as follows:

> "In addition to the Water Board (Lead Agency), this draft EIR may be used by other agencies, including Responsible Agencies to determine the effects of the proposed action. (Pub. Res. Code §§ 21069 and 21070; Cal. Code Regs., tit. 14, § 15096.) The following is a list of the potential agencies that may utilize this document for subsequent approvals:
>
> - California Department of Fish and Wildlife Lake and

Streambed Alteration Agreements,

- Water Board Clean Water Act Section 401 certifications
- Sonoma County Department of Planning approvals
- Napa County Department of Planning approvals,
- Local Air Pollution Control District s and approvals (if required)
- California State Office of Historic Preservation, and
- California State Water Resources Control Board.
- Sonoma Valley Groundwater Sustainability Agency"

Comment 8-11: "Conclusion - The flaws identified above call for the DEIR to be revised to include an adequate, holistic description of the project and environmental baseline and an expanded analysis of the project's potential impacts. Then, the DEIR must be recirculated for additional public review. If the Regional Board refuses to recirculate the DEIR for additional review and comment, the Vineyards request an opportunity to comment on the Final EIR and a copy of the Regional Board's responses to these comments prior to the Regional Board's certification of the Final EIR."

Response to Comment 8-11: Please see our Responses to Comments 8-1 through 8-10. The changes discussed in this Response to Comments document do not trigger DEIR recirculation under CEQA Guidelines section 15088.5 because they do not disclose a new-or-substantially-more-severe significant environmental impact. Rather, they represent clarifications and amplifications of the information presented in the DEIR.

Comment 9-0: Napa appreciates the opportunity to provide comments and "applauds your efforts to improve water quality and sediment reductions consistent with the sediment TMDL for the Napa River watershed.

Response to Comment 9-0: Comment noted. We appreciate the County's collaboration.

Comment 9-1: The commenter raises concerns regarding potential inconsistencies between the County's regulation of vineyards and the framework in the General Permit including stream setbacks, grading deadline (winter shutdown), sensitive domestic water supply drainage requirements and erosion control plan requirements.

Response to Comment 9-1: These comments are addressed through the following changes to the General Permit:

1. In Attachment A to the General Permit on p. A-4, we added the following text to ensure consistency in erosion control plan requirements:

> **"Peak Storm Runoff:** The model developed to evaluate attainment of the peak storm runoff performance standard, as specified above, shall include and be consistent with all of the following;
>
> - Pre- and post-project peak runoff estimates shall be provided for each sub-watershed area that drains into a vineyard drainage outfall. The size of the sub-watershed area is dictated by the drainage area lying upslope of each drainage structure outfall directing runoff from a vineyard block.
> - Pre- and post-project peak flow estimates shall also be quantified at all locations where runoff exits the property (e.g., swales, creeks, ditches).
> - Numerical modeling shall include hydraulic computations that integrate routing of flow through drainage elements such as pipes, surface ditches, rock/grass-lined swales, sedimentation basins, etc. into the numerical rainfall-runoff model.
> - Numerical modeling shall include and account for all types of runoff from roads that drain into modelled sub-watershed areas.
> - Numerical modeling shall include routing of flow through proposed BMP structures that would be implemented to control erosion and/or attenuate runoff.
> - BMP structures shall be designed to address predicted project hydraulic conditions, such as water depth and velocity.
> - Similar to vineyard drainage elements, routing of flows through BMPs (e.g., flow control structures, energy dissipaters/outlet protection, rock lined ditches, check dams, sediment basins, slope drains, streambank

stabilization structures, and gravel berms) may alter runoff rate, and therefore, shall be integrated into the model/hydrologic analysis.

- A comprehensive description of the modeling approach, methods, assumptions, and peak flow estimates shall be integrated into the erosion control plan. "

2. In Attachment A to the General Permit (on p. A-6), we added the following language to ensure that stream setbacks implemented under the General Permit, which are voluntary, could not inadvertently contribute to a violation of County-required stream setbacks:

> Establish and maintain stream setbacks, as measured from the top of bank, along all unconfined alluvial channels[15] that are on average ≥ 1.5 times the bankfull width (see Table 2 for calculation of setback width as a function of watershed area);
>
> Related Footnote
>
> [15]Where the stream setback width required by the local land-use authority is greater than 1.5 times the bankfull channel width, the full width of the locally required stream setback must be complied with in order to qualify for Tier 1 designation under the General Permit.

3. In Attachment F to the General Permit (on p. F-9), we added the following mitigation measures to ensure consistencies with County requirements regarding sensitive domestic water supply drainage requirements:

> "In Sensitive Water Supply Drainages, as defined by the County of Napa, where compliance actions are subject to the requirement to obtain a discretionary permit, as applicable, the Discharger shall comply with Mitigation Measures HY-1 and/or HY-2.

Hydrology-1: Restriction on the Timing of Grading and Earthmoving Activities in Sensitive Water Supply Drainages:

> Grading and earthmoving activities undertaken to comply with this Order that are subject to Napa County's requirements are restricted to the period between April 1 and September 1, unless a grading extension is otherwise granted by Napa County.

Hydrology-2: Sensitive Water Supply Drainage Requirements:

> Except as specified under the performance standard for storm-proofing of new roads, drainage facilities and outfalls constructed in a sensitive domestic water supply drainage (as defined by Napa County) that are constructed to comply with this Order shall be sized to handle runoff from a 100-year storm event (i.e., a 24-hour duration rainfall event that has a 100-year recurrence frequency)."

Please also see "Staff Report in Support of April 12, 2017 Water Board Workshop" (Water Board, 2017, pp. 14-17) for additional information regarding these changes.

Comment 9-2: "Furthermore, while it is understood the formal comment period for the DEIR has closed, in the event components of the draft WDR modify the current regulatory framework in a manner that reduces protections to natural resources, the DEIR should evaluate any adverse environmental impacts that may occur as a result to changes in the regulatory framework."

Response to Comment 9-2: As indicated in our Response to Comment 9-1, the General Permit has been revised to address all of the potential inconsistencies between County regulations and the proposed General Permit, as identified by the County. Therefore, the general hypothetical concern raised by this comment is no longer relevant.

Comment Letter #10
Coalition of Agricultural Organizations Dec 2016 CEQA Comments
December 12, 2016

Comment 10-1: The Draft EIR Fails to Analyze Viable Alternatives Such as the 2012 Vineyard Acreage Thresholds and the 2014 Flat Land Exemption

Further, as analyzed in the 2014 Initial Study for General Waste Discharge Requirements for Vineyard Discharge in the Napa River and Sonoma Creek watersheds, flat lands (slopes less than five percent) with established stream setbacks and no erosion were exempted from regulation under the Vineyard WDR. (2014 Initial Study, p. 4, Table 1.) However, the eligibility, exclusion, and exemption criteria analyzed in the Draft EIR do not include this provision and no information is provided as to why it no longer exists. (Draft EIR, p. 49, Table 2-1.)

Response to Comment 10-1: Please see our Response to Comment 5-7, where we explain why the 2012 WDR waiver criteria was not considered as an alternative. Also as presented in the draft EIR (p. 286):

> "Insufficient information has been provided to determine the location of the acreage that would potentially qualify for exemption under the "Low Sediment Delivery" exemption as proposed. Therefore, the draft EIR conservatively evaluates BMP implementation at all properties that otherwise match the enrollment criteria, regardless of whether some fraction of these might in fact qualify for a low sediment delivery exemption."

Therefore, the draft EIR took the conservative approach of assuming all parcels that met the criteria for enrollment would implement reasonably foreseeable compliance actions (as described in Section 2.5).

Comment 10-2: The Draft EIR Fails to Consider Significance of Social and Economic Impacts and Cumulative Effects - In certain situations such as the adoption of an expansive regulatory irrigated lands discharge program, economic and social effects of the project must be used to determine the significant effects on the environment. The Draft EIR should, in the very least, estimate the percentage of the potentially productive land barred from cultivation and the dollar value of the vineyard owners' or operators' cost for the WDRs compliance. Such figures, when added to those from other regulations, will give the public a proper scope of potential and cumulative impacts and an initial estimate of the amount of farmland that would be lost. Anticipated program implementation costs to the agricultural community include, but are not limited to, increases in potential fees, management practice implementation, monitoring costs, report preparation, and cost for education, preparation of Farm Water Quality Protection Plans, road improvements and erosion control, as well as other costs. Given that the impacts of water quality regulations frequently take years to materialize, the Draft EIR should be revised to analyze the economic costs and impacts within a dynamic framework taking into account the projected changes in the economic situation *over time*. Reliance on outdated economic figures and unsupported assumptions do not meet

the requirements of the Water Code or CEQA, and proper information needs to be included as part of the decision making process.

Response to Comment 10-2: Please see our Response to Comment 1-2. The commenter implies that the economic figures were outdated, but does not identify any newer data that should be considered. Nor does the commenter provide any contrary data to the extensive economic analysis already presented in the draft EIR.

References Cited in Responses to Comments (not already included in the draft EIR)

Altieri, M.A., C.A. Nicholls, L. Ponti, and A. York, 2005. Designing biodiverse pest-resilient vineyards through habitat management. Practical Winery and Vineyard, May/June 2005.

Association of Bay Area Governments (ABAG). 2000. Bay Area Spatial Information Systems (BASIS) files for existing land use in 2000 for the San Francisco Bay Area (GIS layer). Oakland, CA. pp. ii, 5-6 (metadata files)

Brune, G.M., 1953. "Trap efficiency of reservoirs." Transactions, American Geophysical Union, Volume 34 (3): 407-418. California Department of Pesticide Regulation, 2014. 2014 Annual statewide pesticide use report, indexed by commodity, Napa County.

Chatham, S., 2005. Personal communication from Steve Chatham, Prunuske-Chatham, Inc., Occidental, California, to Mike Napolitano, Water Board. May 2005.

Cooper, M.L., K.M. Klonsky, and R.L. De Moura, 2012. Sample Costs to Establish and Vineyard and Produce Winegrapes (Cabernet Sauvignon), North Coast Region, Napa County. UC Cooperative Extension, Napa County: Napa, CA

Kocher, S. D., G.M. Gerstein, and R.R. Harris, 2007. Rural roads a construction and maintenance guide for California landowners. UC Cooperative Extension Publication 8262.

Lanborn, M., 2016. Matt Lanborn, County of Napa, Department of Planning, Building, and Environmental Services, unpublished GIS data regarding vineyard mapping.

Lisle, T.E., 1995. Particle size variations between bedload and bed material in natural gravel bed channels. Water resources Research 31 (4): 1107-1118.

Long, R., J. Gan, and M. Nett, 2005. Pesticide choice: best management practice (BMP) for protecting surface water quality in agriculture. University of California, Division of Agriculture and Natural Resources, ANR Publication 8161.

Los Angeles Times, 2014. Lynn Ingram and Francis Malamud-Roam. A drier California than ever? Pretty Much. As published in the Los Angeles Times, February 3, 2014.

Marcus, Laurel, 2017. Laurel Marcus, Executive Director, California Land Stewardship Institute, Personal communication with Mike Napolitano, Engineering Geologist, Water Board, Oakland, CA.

Napa County RCD, 2010. Demonstrating road improvements. Final Project Report prepared for the State Water Resources Control Board, Grant Agreement # 06-245-552-0.

Napolitano, M.B., 2016. Unpublished analysis of forest lands converted to vineyards within the project area.

Parker, G., 2008. Chapter 3, Transport of gravel and sediment mixtures, in "Sedimentation Engineering (editor Marcelo Garcia), American Society of Civil Engineers, ASCE Manual of Practice, 110.

Rosenstock, T.S., D. Liptzin, J. Six, and T.P. Tomich, 2013. Nitrogen use in California: assessing data, trends, and a way forward. California Agriculture, Volume 67, Number 1: pp. 68-79.

Water Board, 2017. Staff Report in Support of April 12, 2017 Water Board Workshop.

West Yost and Associates, 2005. Technical Memo #4, 2050 Napa Valley Water Resources Study, Napa County Unincorporated Area Water Supplies.