STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

STAFF SUMMARY REPORT (Mike Napolitano)
MEETING DATE: April 12, 2017

ITEM: **9**

SUBJECT: **Proposed General Waste Discharge Requirements for Vineyard Properties in the Napa River and Sonoma Creek Watersheds –**
Informational Workshop to Receive Testimony

CHRONOLOGY: The Board has not considered this item before.

DISCUSSION: This item is an informational workshop on proposed General Waste Discharge Requirements (General Permit) (Appendix A) that would implement the vineyard sediment discharge category identified in the Board's sediment total maximum daily loads (TMDLs) for the Napa River and Sonoma Creek watersheds. The workshop provides an opportunity for Board staff to present the requirements of and recommended changes to the General Permit and for stakeholders to provide testimony on the General Permit directly to the Board.

The General Permit would require owners of parcels containing a five acre-or-larger vineyard to seek coverage under the General Permit and to meet the General Permit's performance standards over a specified timeframe, for the control of surface erosion, road-related erosion, and concentrated stormwater runoff (e.g., bed and bank erosion and channel incision), by implementing best management practices identified through a farm planning process.

Public Outreach: The General Permit and related draft environmental impact report (DEIR) were released for public comment in July 2016. Shortly thereafter, Board staff hosted a town hall meeting in Napa to present the General Permit to stakeholders and to answer questions. Stakeholders requested, and were granted, time extensions to the comment periods for both the DEIR and General Permit. During the extended comment period, Board staff met with interested stakeholders on several occasions to answer questions.

Comments Received: Forty-nine comment letters were received on the General Permit (Appendix B), 30 of which were from vineyard property owners. Other comment letters were received from the California Farm Bureau Federation, the California Land Stewardship Institute, the City of Napa, the Coalition of Agricultural Organizations, the Institute for Conservation Advocacy, Research and Education, the Living Rivers Council, the Los Carneros Water District, Napa County, the Napa County Resource Conservation District, the National Oceanic and Atmospheric Administration - National Marine Fisheries Service, the North Bay Agriculture Alliance, the San Francisco Baykeeper, U.S EPA, and the Vineyard Team.

The comment letters raise a number of issues about the scope of the General Permit and its requirements, the type and size of vineyard properties included, the General Permit's relationship to local vineyard requirements, compliance costs and timelines, and the

monitoring approach proposed for compliance determination. The Staff Report (Appendix C) includes background information on the General Permit, as well as a summary of the overarching comments received and staff responses, including recommended changes to the General Permit. Prior to the Board's consideration of adopting the General Permit, staff will prepare a complete Response to Comments document to address all individual comments received.

While this General Permit is being considered several years following the Board's adoption of the sediment TMDLs, significant progress has been accomplished in the interim towards controlling potentially significant sediment sources within vineyard properties. Throughout TMDL development, and in the period following TMDL adoption, Board staff has continued to work with vineyard managers and property owners, agricultural organizations, local non-profits, and government agencies to encourage development of farm planning programs. The State Water Board and others, including U.S. EPA, have provided substantial funding for farm plan development and implementation, road-erosion control projects, and river restoration projects. Board staff estimate 75 percent-or-more of the total property area that would be enrolled in the General Permit already has completed farm plans that could be certified under the General Permit as-is or could be certified under the General Permit with minor addenda. These efforts demonstrate that the General Permit's requirements are achievable.

Next Steps: After the workshop, staff will revise the General Permit as appropriate and prepare a Final EIR for Board certification prior to consideration of the General Permit. We anticipate bringing the General Permit to the Board for consideration of adoption in early summer.

RECOMEN-DATION: This is an informational workshop, and no action is necessary.

APPENDICES:
A - July 2016 Tentative Order (General Permit)
B - Comments Received
C - Staff Report

Appendix A:

July 2016 Tentative Order (General Permit) for Vineyard Properties in the Napa River and Sonoma Creek watersheds

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.

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[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.

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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 ○ No Longer Farming at this Vineyard Property

Date operation started farming at this vineyard property: MM/DD/YYYY

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

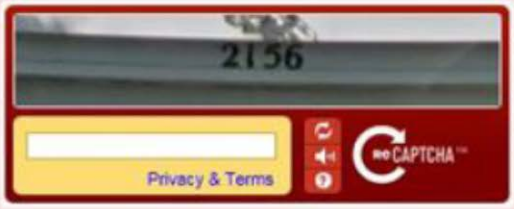
If YES, are they applied under a Department of Pesticide Regulation Permit? ○ YES ○ NO

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:

Comments received can be reviewed and downloaded at

http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/vineyard/index.shtml

Appendix C:

Staff Report

San Francisco Bay Regional Water Quality Control Board

General Permit for Vineyard Properties in the Napa River and Sonoma Creek Watersheds

Staff Report in Support of April 12, 2017 Water Board Workshop

April 3, 2017

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Introduction

In July 2016, the San Francisco Bay Regional Water Quality Control Board (Water Board) released, for public review, proposed general waste discharge requirements (General Permit) for vineyard properties in the Napa River and Sonoma Creek watersheds.

This Staff Report presents: a) the General Permit; and b) an overview of comments received and our responses, focused primarily on the scope/conditions of the General Permit, and policy issues. Prior to the Water Board's consideration of adopting the General Permit, Water Board staff will prepare a complete Response-to-Comments document that addresses all comments received. Staff anticipates that the General Permit will be considered for adoption at the June or July 2017 Water Board meeting.

Description of the General Permit for Vineyard Properties

Under the General Permit, a "vineyard property" is defined by a parcel, or contiguous parcels under the same ownership, which has been developed to include a vineyard. Parcels where a five acre-or-larger vineyard is planted would be required to enroll in the General Permit.

Vineyard properties may pose threats to water quality by discharging sediment, nutrients, and pesticides and/or by increasing storm runoff, which consequently can cause erosion and sedimentation and otherwise impact aquatic life. The Napa River and Sonoma Creek Total Maximum Daily Loads (TMDLs) adopted by the Water Board have established performance standards for sediment discharge and storm runoff to protect and restore water quality. The General Permit would require actions to control pollutant discharges including sediment and storm runoff from vineyards and unpaved roads, which are located throughout vineyard properties, and pesticides and nutrients from vineyards.

The General Permit would require vineyard owners or operators, of parcels that meet the enrollment criteria, to do the following:

1. Develop a farm plan;
2. Get the farm plan certified;
3. Implement the farm plan to achieve discharge performance standards;
4. Submit an annual report regarding progress toward farm plan development and achievement of the performance standards; and
5. Participate in group or individual water quality monitoring programs.

Certified Farm Plan

A farm plan documents a vineyard property's natural features, developed areas, and best management practices. Under the General Permit, a "certified" farm plan would mean that upon its full implementation of the plan, that the Vineyard Property is expected to achieve the performance standards for discharge. The Water Board's Executive Officer would approve Third-Party Programs or certify a farm plan.

At existing vineyard properties, the farm plan would need to be developed and certified within three years of its adoption. At new vineyard properties (those constructed after General Permit adoption), the farm plan would need to be developed and certified by the completion of

vineyard construction, or within three years of General Permit adoption - whichever date is later[1].

Performance Standards for Discharge

Each performance standard established by the Water Board sets a bar for the level of pollutant discharge control. Under the General Permit, at existing vineyard properties, performance standards would need to be achieved for:

1. Vineyard soil erosion, pesticides, and nutrients within three years of General Permit adoption;
2. Storm runoff/channel erosion (at hillslope vineyards) within six years of General Permit adoption; and
3. Road-related sediment delivery (at hillslope vineyards) within ten years of General Permit adoption.

At new vineyard properties, the performance standards for soil erosion, pesticides, nutrients, and storm runoff (at hillslope vineyards) would need to be achieved by the completion of vineyard construction; the performance standards for bed and bank erosion (at hillslope vineyards) would need to be achieved within six years of vineyard construction; and the performance standards for road erosion (at hillslope vineyards) would need to be achieved within ten years of vineyard construction.

How do the General Permit and County Erosion Regulations Differ?

Four significant sediment sources are associated with vineyard properties:

1. Vineyard soil erosion;
2. Off-site erosion caused by vineyard storm runoff increases;
3. Road-related sediment delivery; and
4. Channel incision.

Until recently, Napa and Sonoma county regulations focused almost exclusively on vineyard soil erosion at hillslope sites[2]. In 2009, Napa County added a requirement for new hillslope vineyards to also control storm runoff increases. The General Permit would fill gaps in local regulation so that all four sediment sources are effectively controlled to reduce fine sediment deposition in stream channels that provide habitat for endangered steelhead populations, locally-rare Chinook salmon populations, and exceptionally diverse assemblages of native fish species.

[1] The compliance deadline for new vineyard properties is flexible during the first three years following General Permit adoption, so vineyard properties developed within one or two years of General Permit adoption would not be expected to develop a certified farm plan on a more aggressive time schedule than an existing vineyard property.

[2] Only about half of the planted vineyard acreage in the area subject to the General Permit is currently subject to county erosion control regulations.

What if I own a Vineyard Property with a Completed Farm Plan?

In advance of the General Permit, many vineyard property owners have already completed farm plans to enhance water quality and habitat conditions. These include farm plans developed under Fish Friendly Farming, LandSmart, and other programs. Many hillslope vineyard properties are also operated under county-approved erosion control plans.

Therefore, we expect that many of these vineyard properties that have previously completed and implemented a farm plan, are already achieving the performance standards for discharge that would be required by the General Permit. In these circumstances, the only additional requirements for property owners would be the "certification" of their farm plan by an approved Third-Party Program, or the Executive Officer, and the continued implementation of the existing farm plan.

At vineyard properties where previously completed farm plans have achieved some, but not all, of the performance standards for discharge, addendums would need to be added to the existing farm plan to make it complete, so that upon its full implementation, the vineyard property would achieve all applicable performance standards.

Third-Party Program Resources

Within six months of adoption of the General Permit, the Water Board would recognize and publish a list of approved Third-Party Programs that have demonstrated expertise in farm plan development and implementation. Third-Party Programs would help landowners comply with General Permit requirements including farm plan development and implementation. Landowners who elect to develop a farm plan with approved Third-Party Programs would be in an excellent position to assure compliance with the General Permit.

Permit Administration

The General Permit would establish three tiers for enrollment based on the administrative costs to regulate vineyard properties and their relative risk to water quality, which are defined as follows:

- Tier 1 or Stewardship Tier: A vineyard property being operated under a certified farm plan that has achieved the performance standards for discharge and also the performance standards for "Fully Protected Stream Corridors" (as defined in the General Permit) would qualify for Tier 1. Tier 1 is exempt from annual reporting and water quality monitoring. A fee reduction is also contemplated.
- Tier 2: A vineyard property would qualify for Tier 2 if a certified farm plan is being developed for the property, or if the farm plan has been developed and certified, but has not been fully implemented. Submittal of an annual compliance form and monitoring are required under Tier 2; however, enrollees have the option of participating in a group monitoring program that would significantly reduce compliance costs. Tier 2 enrollees also may qualify for reduced permit fees.
- Tier 3 includes those vineyard property owners who elect to develop a farm plan without having it certified by an approved Third-Party Program. Tier 3 enrollees must submit their farm plans to the Executive Officer for review and certification.

All existing vineyard properties, and most new vineyard properties, would be required to enroll under Tier 1, 2, or 3, as applicable. New vineyard properties developed on a ridgetop[3], on slopes greater than 30 percent, and/or that involve a timber conversion plan present a greater risk to water quality and would be required to obtain an individual permit from the Water Board.

Circulation of the General Permit for Comment

The General Permit and its associated draft environmental impact report (DEIR) were released for public comment on July 15, 2016. These documents, including comments received on the permit and DEIR, are posted on the Water Board's website at

http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/vineyard/index.shtml

Following release of the General Permit, Water Board staff hosted a Town Hall meeting in the City of Napa on July 26, 2016 to present the General Permit and answer related questions. Originally the comment period was scheduled to close on August 29, 2016. Grape growers and agricultural organizations requested a substantial time extension to avoid overlap with the crush (wine-grape harvest period), as needed to allow sufficient time for review, and to allow the opportunity for follow-up meetings with staff and discussions prior to submittal of comments. To address these concerns, Water Board staff extended the comment period on the General Permit through December 12, 2016, and met with interested stakeholders including:

a) An agricultural coalition (Napa Valley Grapegrowers, Napa Valley Vintners, Sonoma County Farm Bureau, Winegrowers of Napa County, CA Association of Winegrape growers, the Napa County Farm Bureau, and the Wine Institute);
b) The Napa County Resource Conservation District (RCD);
c) The California Land Stewardship Institute;
d) NOAA Fisheries;
e) BayKeeper; and
f) The Living Rivers Council.

[3] 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."

Comments Received on the General Permit

In the section that follows, we provide a summary of comments received and our responses, which is focused primarily on the scope/conditions of the General Permit, and policy issues. Prior to the Water Board's consideration of General Permit adoption, Water Board staff will prepare a complete Response-to-Comments document that addresses all comments received.

We received 49 comment letters regarding the General Permit, 30 of which were from vineyard property-owners whose primary concerns included:

a) Whether the actions called for in the General Permit are still needed considering "extensive river restoration and BMP improvements" that have been completed following TMDL adoption;
b) The Water Board is not relying on current water quality data;
c) The General Permit is "duplicative of Napa and Sonoma County regulations;"
d) The General Permit is "excessively burdensome and should not include [regulate] contiguous parcels without vineyards;"
e) That Water Board staff are making "unsubstantiated assumptions about the connection between basic farming practices and the health of the watershed and should remove references to nutrients and agrichemicals;"
f) That compliance schedules are not reasonable, especially "since many growers are still unaware of the proposed regulations;" and
g) "The arbitrary vineyard acreage threshold for inclusion (enrollment in the proposed permit) … will result in a disparate economic impact to small farmers."

Agricultural organizations, providing additional specific details, emphasized the same areas of comment as the vineyard property-owners, and also recommended that the primary focus of required monitoring be evaluation of sediment TMDL numeric targets for streambed conditions.

The Napa County RCD commented as follows: a) recommended and discussed in detail, why numeric targets monitoring should be the focus of required monitoring; b) expressed concerns related to economic hardships that permit compliance may present to small farmers; c) stressed that Napa County regulations are working, and that implementation of an additional complex permit by the Water Board would "undermine and be counterproductive to current voluntary conservation actions;" d) expressed concerns regarding the proposed approval process for "Qualified Professionals;" e) requested clarification regarding specific details of the permit; and f) that we "take into account the results of ongoing fisheries monitoring."

Environmental organizations provided the following comments: a) related to attainment of performance standards for discharge, specifically guidance for permittees as related to modeling and monitoring, that they recommend be included within the permit to ensure that the performance standards are attained; b) that additional actions and monitoring are needed to control pesticide and nutrient discharges; c) stating their frustration with the lack of progress in achieving the sediment TMDLs; d) stating their concerns that local regulations are not effectively protecting water quality and habitat; and e) that farm plans (required under the permit) should be available for public review.

The City of Napa expressed concerns regarding potential linkages between vineyard property discharges and the occurrence in recent years of significant algal blooms in Lake Hennessey, the primary water supply reservoir for the City of Napa. It recommended that monitoring include sampling for turbidity, pesticides, and nutrients.

The California Land Stewardship Institute, which operates the Fish Friendly Farming Program, expressed concerns regarding: a) the compliance deadline for completion of a certified farm plan, which they suggest be extended; b) how "Qualified Professionals" are defined; c) how "Certified" is defined and used under the General Permit; and d) several specific comments regarding details of the permit, many of which relate to protection and/or restoration of stream-riparian habitat.

NOAA Fisheries and USEPA expressed their overall support for General Permit, while offering suggested changes to improve its effectiveness (e.g., providing additional guidance to permittees to ensure that stream-riparian habitat is protected, and making specific comments relating to monitoring, tracking progress, and/or audits and inspections).

In the section that follows, we summarize comments received and our responses, and propose Water Board staff's recommended changes to the General Permit as circulated in July 2016, which are shown in <u>underline</u> and ~~strike-through~~.

Comment 1: The General Permit relies heavily on the use of pre-2005 data to estimate sediment loads, and does not account for the extensive river restoration work and improvements to BMP programs that have taken place since then. *In summary, vineyard property owners and agricultural organizations appear to be implying that Water Board staff has crafted a permit that is too burdensome, and/or that the permit is unnecessary.*

Response to Comment 1

The State Water Code and the State Nonpoint Source Policy obligate the Water Board to address all discharges of waste that could affect the quality of the waters of the State, as needed to attain and maintain water quality standards.

While Water Board staff concur that substantial river restoration has occurred in the Napa River watershed subsequent to TMDL adoption, we also conclude that additional conservation actions are needed on vineyards properties to achieve 50% or greater reductions in sediment loads (called for in the TMDLs) from road-related erosion, surface erosion in farming areas, and erosion caused by concentrated runoff from hillslope vineyards. Our supporting rational includes consideration of:

a) The referenced pre-2005 data;

b) The positive effects of subsequent river restoration and additional implementation of Best management Practices (BMPs) that have taken place since 2005; and

c) Review of more recent water quality data.

Information supporting points a) through c) are summarized below.

a) Pre-2005 data

As background, the "pre-2005 data" includes the Napa River Basin Limiting Factors Analysis (Stillwater Sciences and Dietrich, 2002), and the Napa River watershed sediment budget (Water Board, 2009)[4]. These studies provide a scientific basis for understanding the scale and breadth of land-use related impacts to steelhead and salmon populations[5]. The baseline defined by these studies is essential, in considering the potential significance of subsequent conservation actions, and more recent data. Therefore, we first summarize the limiting factors analysis and sediment budget studies.

The limiting factors analysis identified two sediment-related impacts on steelhead and salmon in the Napa River watershed: a) significantly elevated concentrations of fine sediment in streambeds; and b) pervasive channel incision, which is both a significant fine sediment source, and the primary agent for

[4]Water Board (2009) presents a watershed sediment budget that characterizes sediment discharges in the Napa River watershed between 1994 and 2004. This report also includes other parts of the TMDL, and required economic and CEQA analyses. The much later publication date (2009) is the consequence of a subsequent legal challenge of the CEQA analysis, which delayed Water Board adoption of the TMDL.

[5] Since almost all comments we received regarding watershed conditions and subsequent conservation actions refer to the Napa River watershed, our response is focused on Napa. Note however, that a salmonid limiting factors analysis (Sonoma Ecology Center et al., 2006) and a watershed sediment budget (Water Board, 2008), also were prepared for the Sonoma Creek watershed in the mid-2000's, and in general, all major conclusions described above for Napa, also hold for Sonoma. Staff are not aware of extensive restoration projects in the Sonoma Creek watershed subsequent to development of the TMDL.

habitat simplification. These sediment impacts interact synergistically with poor baseflow, stressful water temperatures, and fish migration barriers to substantially depress salmon and steelhead production.

The Napa River watershed sediment budget quantified rates of natural and human-caused sediment delivery to channels between 1994 and 2004, and also developed an empirical relationship between sediment delivery and streambed conditions (Water Board, 2009). Professor Bill Dietrich, an erosion and sedimentation expert and National Academy of Sciences Fellow, praised the study and expressed his agreement with its conclusions (Dietrich, 2006), which include the following:

- More than ½ of the fine sediment delivered to channels was associated with roads, human-caused channel incision, vineyards, and/or intensive historical grazing;
- The total rate of sediment delivery was about two-times natural background, and sand and finer sediment delivery were elevated to an even greater extent;
- Total sediment delivery to channels needs to be reduced to about 125% of the natural background rate in order to restore properly functioning streambed conditions; and
- As such, all significant human-caused sediment sources must be reduced by 50% including surface erosion in vineyards and rangelands; erosion caused by concentrated runoff from hillslope vineyards and/or intensive historical grazing; road erosion; and channel incision.

b) Consider the positive effects of subsequent conservation actions that have taken place since 2005

We concur that extensive river restoration has occurred subsequent to the TMDL, throughout approximately 7-miles of the Napa River in the Rutherford and Oakville-to-Oak Knoll reaches that has significantly enhanced streambed and other habitat conditions in these reaches[6]. We also note upon completion of other planned restoration in the Oakville-to-Oak Knoll reach, expected by fall of 2020 (Horne, 2017), approximately 14-miles of the Napa River will be restored, which is equivalent to the amount called for in the TMDL (Water Board, 2009, pp. 85-87, and 140-141). Therefore, within the next few years, it appears that sediment delivery from channel incision will be reduced by 50 percent-or-more as a result of river restoration; earlier than the deadline specified in the Basin Plan (2029). We compliment the landowners and government agencies who have worked together to make this possible.

However, in addition to channel incision, as identified by the sediment budget, other significant land-use related sediment sources also need to be reduced by 50 percent-or-more including: surface erosion in vineyards and rangelands; erosion caused by concentrated storm runoff from hillslope vineyards and/or grazing; and road-related erosion. Specifically, based on Water Board staff participation in property inspections and farm plan reviews between 2004 and 2016 at more than 100 vineyard properties in the permit area, and also through administration and technical input on grants for road-erosion control projects, we conclude that additional conservation actions are necessary at some vineyard properties in order to reduce by 50 percent-or-more: surface erosion in vineyards; erosion caused by concentrated runoff; and road-related erosion.

[6] Specifically these projects involve substantial excavation and/or fill to reduce the force per unit area exerted on the channel bed and banks; to sort and meter sediment; and to enhance habitat complexity and connectivity by increasing channel width-to-depth ratio, constructing side channels and inset floodplains, and expanding native riparian vegetation communities on channel banks and floodplains. Also, designs are premised upon sediment transport and hydraulic modeling, and are refined adaptively based on monitoring performance of earlier projects.

Based on the inspections cited above, we conclude that many vineyard properties already are achieving all applicable performance standards for discharge. For example, we conclude it is likely almost all valley-floor vineyard properties that have fully implemented a farm plan certified under the Fish Friendly Farming or Land Smart programs, are currently achieving all applicable performance standards for discharge. At other valley floor vineyard properties (those that have not fully implemented a certified farm plan), it should be fairly straightforward to document that effective practices are in-place or to implement additional BMPs as needed to meet performance standards[7].

Similarly, at hillslope vineyard properties (on five percent grade or greater) with farm plans developed under the Fish Friendly Farming or Land Smart programs that are certified and fully implemented, it is likely that most properties already have achieved most or all performance standards for discharge. In some cases, additional efforts may be needed to achieve road discharge performance standards. At other hillslope vineyard properties, which have not completed and fully implemented certified farm plans, implementation of additional BMPs will be necessary to reduce road-related erosion, and also storm runoff, where vineyards discharge into unstable areas.

c) More Recent Water Quality Data (Stillwater Sciences, 2013)

In 2011, the Water Board awarded a grant to the Napa County RCD to develop a monitoring program to assess attainment of sediment TMDL targets[8] for streambed permeability and redd scour in the Napa River watershed. To inform development of the full monitoring program, a pilot monitoring program was conducted in water year[9] 2013. The pilot monitoring program results can be used to characterize current conditions with regard to streambed permeability in five mainstem and five tributary reaches (Stillwater Sciences, 2013). Four of these tributary reaches, and one of the mainstem reaches also were monitored in water year 2004 as part of the TMDL, and therefore it is possible to assess how conditions have changed in these reaches between water years 2004 and 2013. In summary, for the stream reaches monitored in both years, streambed permeability either improved in water year 2013 or was similar to the value for water year 2004. Also, in three of four tributaries monitored in water year 2013, the median value for permeability was equal to or greater than the TMDL target value. However, in three of four mainstem Napa River reaches and one of the tributary reaches monitored in water year 2013, the median values for permeability were ≤ 3,500 cm/hr, well below the target value. Because limited data is available to characterize baseline values for redd scour, and recovery of scour chains installed in water year 2013 was poor, it is unclear how current conditions for redd scour compare to the TMDL target values.

Summary

Based on a review of available information, summarized above, Water Board staff concludes that evidence is insufficient to support a finding that properly functioning substrate conditions have been attained or will be attained in the near-term, absent implementation of the General Permit's

[7] For example with regard to sediment control, most valley floor vineyards are not subject to County requirements to prepare an erosion control plan. At some of these vineyards we have observed that tillage continues into the beginning of the rainy season, and/or ground cover is not well established prior to the onset of significant rainfall. More than half of the total acreage of vineyards within the project area is planted within valley floor sites.

[8] Numeric targets define parameters (i.e., streambed permeability and redd scour) and also target values for those parameters that define attainment of water quality objectives.

[9] The water year starts on October 1 of the preceding calendar year and continues through September 30 of the named "water year."

requirements. Furthermore, considering available information regarding the status of Chinook salmon and steelhead populations in the Napa River and Sonoma Creek watersheds, Water Board staff conclude that, it is likely that these populations are small, highly variable, and that a small fraction of the potential channel habitat has a disproportionate influence on smolt production, leaving these populations vulnerable to a moderate risk of local extirpation in the near-term (as defined per Spence, 2008, pp. 16-43, Table 1).

Finally, elevated concentrations of fine sediment in streambeds likely act directly (Harvey et al., 2009; Suttle et al., 2004), and/or in a synergistic fashion with other stressors (Harvey and Railsback, 2007) to depress potential production of steelhead and/or Chinook salmon smolts in a large portion of the potential habitat for salmonids that occurs within the Napa River and Sonoma Creek watersheds. Therefore, Water Board staff concludes that it is prudent to restore properly functioning substrate conditions with regard to sediment and other stressors, as needed to conserve and recover Chinook salmon and steelhead populations.

Comment 2: The permit scope needs to be revised as related to the vineyard property definition, size threshold for enrollment, types of vineyard properties regulated, and pollutants to be controlled.

2.1 Vineyard property definition

The vineyard property "definition is overly expansive in scope and burdensome … may lead to disparate impacts on small vineyard owners (California Farm Bureau Federation)." Many vineyard property owners and agricultural organizations commented that the vineyard property definition contained in the permit was expansive and unfair because it proposed regulation of property areas and features outside of the farming area, and that compliance with permit could result in economic hardships to small family farmers (who are land rich but cash poor).

Response to Comment 2.1

The General Permit, as circulated for comment in July 2016, defined a "vineyard property" as the entire parcel or contiguous parcels under the same ownership, where grapevines are planted on any part of the property. All vineyard properties, where 5 acres-or-more are planted in grapevines, would be required to enroll and comply with the General Permit. Water Board staff included the entire parcel or contiguous parcels under the same ownership in the vineyard property definition because extensive networks of unpaved property access roads that occur throughout these parcels are a potentially significant source of fine sediment delivery to channels that must be effectively controlled in order to achieve the TMDLs' performance standards.

In response to comments and the underlying concern, Water Board staff evaluated the effect on water quality of revising the vineyard property definition, such that a "vineyard property" would only include parcels planted in grapes, while maintaining the five-acre vineyard size threshold for enrollment. Under this revised vineyard property definition, we found there would be only a small reduction in planted vineyard acreage and total property acreage that would be enrolled in the General Permit. Specifically, we note that revising the vineyard property definition to focus solely upon parcels where a five acre-or-larger vineyard is planted, would only reduce the estimated enrolled vineyard acreage by a few percent and the total property acreage by about eight percent. From a water quality perspective, these differences in the extent of sediment control actions would not be significant.

Therefore, staff recommends that the Vineyard Property definition be revised to read (under **Scope of Coverage**):

For purposes of this Order, a "Vineyard Property" is defined ~~as the entire~~ by a parcel or contiguous parcels under the same ownership, ~~where grapevines are planted on part of the property~~ each of which is developed to include a vineyard.

Please note that under the proposed permit, the typical threshold for enrollment would be those parcels where a 5 acre-or-larger vineyard is developed**.**

2.2 Size threshold for enrollment

Agricultural organizations and vineyard property owners commented that the five-acre vineyard size threshold for enrollment, considering potential compliance costs, could constitute an economic hardship for many small family farmers. Environmental organizations questioned why smaller vineyards were not required to enroll, and whether this would compromise water quality protection.

Response to Comment 2.2

Water Board staff recommends maintaining a five-acre threshold for enrollment because:

a. Effective erosion control measures need to be in place at almost all vineyards in the permit area to achieve sediment TMDL load allocations for soil erosion in farm areas. Based on GIS analysis, a five-acre vineyard size threshold would result in approximately 90 percent of the total vineyard acreage being enrolled in the General Permit, ensuring that effective erosion control practices would be in-place at almost all vineyards."

b. During the first decade of the General Permit, total compliance costs for vineyard properties (see detailed response below, "4.0 Economic Considerations") are expected to be about $80-$320 per acre per year representing about 1-to-8 percent of total operating expenses (and these costs would go down to less than 2 percent during the second decade).

c. As described earlier, staff recommends that the vineyard property definition be revised to focus solely on parcels where a five acre-or-larger vineyard is planted, so as to reduce the potential for creating a financial hardship for a land-rich/cash-poor small family farmer[10].

[10] Note for example, if a 5 acre vineyard was planted on a 640 acre parcel, considering average road density values (miles of road per square mile of land area) for properties in the permit area, there would be approximately 4 miles of unpaved roads located throughout their property, and about 1 mile of which would need to be treated to comply with the draft permit, at an estimated cost of $25-to-30,000 per mile. Total operating expenses for a typical 5-acre vineyard at present, not considering road erosion control actions required under the permit, would range from approximately $20-to-30,000 per year. Adding the road erosion control costs, as accrued over the ten-year period for implementation, would increase total operating expenses by 10-to-15 percent during the first decade of the permit. Once the road retrofits were completed, permit compliance costs would only represent a 1-to-2 percent increase in total operating expenses.

Comment 2.3: Types of vineyards that would be regulated

Agricultural organizations and vineyard property owners commented that valley floor vineyards do not present a significant pollutant discharge threat, and therefore, should not be required to enroll in the permit, or be subject to more limited requirements with regard to the detail and scope of the farm plan. Agricultural organizations also commented that new vineyards proposed for development on greater than 30 percent slopes should also be allowed to enroll in the General Permit, and not be subject to the requirement to obtain individual waste discharge requirements.

Response to Comment 2.3

Valley Floor Vineyards

Water Board staff continues to recommend that a five acre-or-larger valley floor vineyard be required to enroll under the General Permit and be subject to all permit conditions. Per our response to Comment 2.2, Water Board staff note that total compliance costs for a small valley floor vineyard property (see detailed response below, "4.0 Economic Considerations") are expected to be modest, in most cases about $80 per acre per year, and typical compliance costs would be significantly lower per acre for a larger valley floor vineyard. More importantly, valley floor vineyards constitute more than half of the total planted acreage of vineyards within the permit area, and they are largely exempt from county requirements to prepare and implement an erosion control plan. If ground cover is not well established prior to the onset of significant rainfall, valley floor vineyards present the potential to discharge significant amounts of fine sediment into stream channels. As indicated as part of our response to Comment 1 above, based on staff inspections conducted at more than 100 vineyards within the permit area, we note that prior to farm plan certification, tillage occurs into the late fall at some sites, making them vulnerable to potentially significant rates of soil erosion and fine sediment discharge to channels. Therefore, Water Board staff continues to recommend that five acre-or-larger valley floor vineyard should be required to enroll in the General Permit, and be subject to all permit terms and conditions.

New Vineyards developed on Greater than 30 Percent Slopes

Water Board staff continues to recommend that new vineyards proposed for development on slopes greater than 30 percent be regulated under individual permits because vineyards (and/or other types of projects) developed on steep slopes present greater potential to cause or contribute to significant increases in rates of surface, fluvial, and landslide erosion on- and/or off-site, as the result of development related changes in vegetation cover, drainage, topography, and/or the distribution of mass on hillslopes. Vineyards proposed on steep slopes should be subject to site-specific regulatory review, and also as needed, site-specific permit terms and conditions. Where steep slope vineyards are well planned, Water Board staff expects the project review process to be fairly straightforward and timely, and that the terms and conditions of individual permits would closely follow those of the General Permit.

Comment 2.4: Pollutants to be controlled

Several vineyard property owners and agricultural organizations commented that the proposed permit shouldn't include conditions related to control of pesticide and/or nutrient discharges because no findings were presented linking vineyard properties to potentially significant discharges. In contrast, environmental organizations, the City of Napa, and watershed residents commented that additional measures are needed to control and limit vineyard pesticide applications and discharges within the permit area. The City of Napa and ICARE also expressed concerns regarding nutrient pollution problems and potential linkages to vineyard properties.

Response to Comment 2.4

Water Board staff recommends maintaining the General Permit's proposed terms and conditions to control application and limit potential discharge of pesticides and nutrients from vineyard properties, and that the following finding be added to the General Permit (in the section that presents **Water Quality Concerns)** to provide additional supporting rationale:

1. 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. At present, several pesticides are applied in large amounts (> 1000 pounds of active ingredient) and/or over extensive land areas (> 1000 acres) within the permit area that are xenoestrogens which may present the potential to contribute to feminization of Chinook salmon, and/or which have moderate to very high potential to contribute to aquatic toxicity (Long et al., 2005). Pesticides of highest concern that currently are applied in large amounts over extensive areas within the permit area include pendimethalin, pryaclostrobin, trifloxystrobin, oxyfluorfen, cyprodinil, triflumizole, and imidacloprid. These compounds may pose a potential threat to water quality; however, at present there is limited information on their occurrence in waters.

Comment 3: Overlap and consistency with county regulatory requirements

Comment 3.1: The Permit should not be duplicative of county regulatory requirements

Agricultural organizations and grape growers commented that the General Permit is duplicative of local regulatory programs.

Response to Comment 3.1

We disagree that the General Permit would be duplicative. As described in the DEIR project definition, we note that 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 hillslope vineyards and roads have been identified as two of several causes for channel incision, which also is a significant fine sediment source and the primary agent of channel habitat simplification.

Local regulatory programs have focused largely on soil erosion within hillsope vineyards. Therefore, we expect that vineyard properties operating under locally approved erosion control plans would meet the performance standards for soil erosion in farming areas specified in the General Permit.

However, other potentially significant sediment sources including: a) concentration of storm runoff from hillslope vineyards and unpaved roads, which may cause or contribute to increases in off-site gully erosion, landsliding, and/or channel incision; and b) sediment discharges from unpaved roads, in most cases, have not been subject to local regulation.

Similarly, soil erosion in vineyards located on valley floor sites, which constitute more than half of the total planted vineyard acreage, are not subject to local erosion control plan requirements.

Therefore, we disagree that the General Permit is duplicative. Instead the General Permit would focus largely on closing gaps in local regulation of potentially significant sediment sources.

Comment 3.2: Potential inconsistencies with Napa County regulatory requirements

The County of Napa in its comments requested clarifications regarding potential inconsistencies between the County's existing regulations and the proposed General Permit as related to: a) stream setbacks; b) permissible timing of grading activities; c) drainage facilities constructed within domestic water supply watersheds; and d) erosion control plan requirements.

Response to Comment 3.2

a) Stream setbacks

The General Permit would not require stream setbacks but instead, provides incentives for establishment of stream setbacks and/or for participation in reach-scale stream restoration projects (refer to enrollment Tier 1). These incentives include reduced permit fees, and reduced reporting and monitoring requirements. The purpose of the voluntary setback incentives under the General Permit is to maintain and/or re-establish pool-riffle bedforms, and also an interconnected floodplain and riparian corridor in unconfined alluvial channel reaches. Most unconfined alluvial channel reaches in the Napa River and Sonoma Creek watersheds are deeply incised and simplified as a result of historical and/or current land-use activities.

In order to qualify for Tier 1, in addition to fully implementing a certified farm plan, in unconfined alluvial valley reaches (e.g., where channels traverse valley floor settings) permittees must establish a setback from the top of the bank, on each side of the channel, that is greater than or equal to 1.5 times the bankfull channel width. Including setbacks on each side of the channel and also the width of the channel, the resultant stream-riparian corridor would be greater than or equal to four times the bankfull channel width, as is needed to form and/or maintain alternate bars (Jaeggi, 1982), an inset floodplain, and allow the channel to evolve over time via meandering and/or avulsion processes (Montgomery and Buffington, 1998, pp. 33-34; Church, 2002). Providing the channel enough space to adjust its width, depth, and location is essential for formation and maintenance of complex inter-connected channel habitats (Montgomery, 2003, pp. 25-31).

To avoid potential inconsistencies with regard to the establishment of voluntary setbacks under the General Permit, as compared to width of stream setbacks required by Napa County, Water Board staff recommends adding the following text to the General Permit (within **Attachment A** of the General Permit, in the section describing **Stream-Riparian Habitat Protection and Enhancement Actions**):

> <u>"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 locally required stream setback must be complied with in order to qualify for Tier 1 designation under the General Permit."</u>

b) Permissible timing of grading

Napa County regulations limit grading and earthmoving activities on slopes greater than five percent in most locations to the period between April 1 and October 15; this period is further restricted in watershed subareas that are designated as "sensitive domestic water supply drainages" (e.g., Lake Hennessey watershed, upper Milliken Creek, Rector Canyon, upper Bell Canyon Creek) to the period between April 1 and September 1.

Under the General Permit, absent potential site-specific impacts to water quality and/or biological resources, the permissible period for grading and earth moving activities would be from June 1 through October 15. To avoid potential inconsistencies with Napa County regulations, Water Board staff

recommends that the General Permit be revised to add an additional mitigation measure, Hydrology-1: Restriction on the Timing of Grading and Earthmoving Activities in Sensitive Water Supply Drainages, which would be included in the General Permit within **Attachment F, CEQA Impacts and Mitigation Measures**:

> "Grading and earthmoving activities undertaken to comply with this Order that occur on slopes greater than five percent, and which are subject to the requirement to obtain a discretionary permit from Napa County are restricted to the period between June 1 and September 1."

c) Drainage facilities constructed within domestic water supply watersheds

Consistent with Napa County regulations for new or replanted vineyards, drainage facilities (e.g., culverts, detention ponds, drainage ditches) constructed in sensitive domestic water supply drainages would need to be designed and constructed to handle runoff from a 100-year storm event (i.e., a 24-hour duration rainfall event that has a 100-year recurrence frequency).

With regard to the General Permit, the performance standards for storm runoff at a hillslope vineyard is defined exactly the same as the Napa County storm runoff control requirement, so there is no potential for inconsistency with regard to drainage facilities constructed as part of development of a new or replanted vineyard.

Compliance with the General Permit would not require modification of existing road crossings (e.g., culverts, bridges, fords, etc.), but would require that new roads be storm-proofed including that all road crossings be designed to handle runoff form a 100-year storm, plus the anticipated sediment and debris loads (as defined by Cafferata et al., 2004). In this case, compliance with the General Permit would result in drainage facilities that are designed and constructed to a standard that exceed that required by Napa County for drainage facilities constructed in sensitive domestic water supply drainages.

To avoid any potential inconsistencies, staff recommends that the General Permit be revised to add an additional mitigation measure, Hydrology-2: Sensitive Water Supply Drainage Requirements, which would be included within the General Permit in **Attachment F, CEQA Impacts and Mitigation Measures**:

> "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)."

d) Napa County erosion control plan requirements for new vineyard development projects and related mitigation, monitoring, and reporting consistent with approved CEQA documents

Napa County staff commented that it is unclear how compliance with the General Permit would interplay with the engineering design requirements and details of future approved County erosion control plans. Similarly, Napa County staff also commented that it is unclear how potential inconsistencies related to CEQA compliance per mitigation, monitoring, and reporting for these same projects would be handled.

There are two performance standards for hillslope vineyards that future approved County erosion control plans could be expected to satisfy: 1) soil erosion in the farm area; and 2) storm runoff from a new hillslope vineyard.

The General Permit currently includes guidance regarding hydrologic modeling assumptions, specifically that ripping of soils shall not be inferred to result in a long-term increase in soil infiltration capacity, and Hydrologic Soil Group Classification shall not be modified. In response to comments by Napa County staff and the Living Rivers Council, in conjunction with our review of hydrologic models prepared for several recent vineyard development projects, in order to avoid potential inconsistencies with regard to hydrologic modeling specifications and assumptions, Water Board staff recommend that the General Permit be revised to include the following additional guidance with regard to hydrologic modeling, which would be inserted into **Attachment A** of the General Permit, in the section that presents the **Performance Standards for Discharge**:

- 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 also shall 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, roc/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.

Assuming conformance of project proponents with the modeling guidance provided immediately above, Water Board staff conclude that there should not be inconsistencies between engineering design requirements and details of future approved County erosion control plans, and General Permit compliance actions.

With regard to CEQA mitigation, monitoring, and reporting arising from Napa County CEQA documents, assuming a County-approved vineyard project achieves the General Permit's performance standards for soil erosion and storm runoff, there should be no inconsistencies related to CEQA compliance.

Comment 4: All costs must be accurately estimated and hardships to small vineyard owners considered

Agricultural organizations and grape growers expressed concerns about the General Permit's potential economic hardship to growers, particularly the small and/or family business farmer. Prominent among those concerns were the costs to prepare a farm plan, and costs to control road-related sediment delivery to channels in order to comply with the General Permit. In considering the potential compliance costs, Agricultural organizations also directed Water Board staff to specify potential sources of financing, specifically grants that will be available to offset potential costs, such that the actual cost of compliance is accurately estimated.

Response to Comment 4

Staff have prepared example compliance cost estimates for a small valley floor vineyard, and also for small, medium, and large hillslope vineyards located on a large parcel (640 acres) to support a conclusion that costs to comply with the General Permit would correspond to approximately 1-to-8 percent of typical total operating costs for vineyards that are established within the permit area.

Water Board staff also recommends the changes to the following sections of the General Permit, all of which would reduce potential compliance costs:

a) Vineyard property definition (see Response to Comment 2.1);

b) Road performance standards (see below); and

c) Tier 3 monitoring requirements (see below).

Recommended changes to General Permit to address concerns regarding potential economic hardships

As described earlier (Response to Comment 2.1), staff recommends that the vineyard property definition be revised, such that only those parcels planted in grapes be regulated, typically, a five acre-or-larger vineyard. This revision would result in an estimated 8 percent reduction in the total property area enrolled in the General Permit, and a smaller reduction in the planted area enrolled. The overall effect on sediment delivery to channels and substrate conditions in streams would not be measurable, however, this revision would reduce the potential for economic hardship associated with permit compliance that could occur for a cash-poor (i.e., five acre vineyard), but land-rich (640-acre parcel) farmer, who, considering this large parcel, could have significant compliance costs associated with road-erosion control.

Staff also recommends revising the General Permit to: a) allow Tier 3 permittees the ability to participate in group monitoring program option, which would be much more cost effective (less than $10 per acre per year) than developing and conducting an individual monitoring program; and b) clarify that the road erosion control performance standards only apply to hillslope vineyard properties.

We also note the following information, which bears on costs and/or grant funding:

a) Over the past decade in the Napa River watershed, the Water Board has provided approximately $2.9 million in funding for farm plan development and implementation and road-erosion control projects; note that other public agencies including the USDA Natural Resources Conservation Service, the California Department of Fish and Wildlife, the US EPA, and the California Coastal Conservancy, also provided significant funding that is not considered here.

b) The typical cost for the road erosion control actions required under the proposed General Permit would be less than or equal to $30,000 per mile (Napa RCD, personal communication, 2016). Considering an average density of unpaved roads at hillslope properties within the permit area equal to four miles per square mile of land area, and for every four miles of unpaved road, typically one mile would need to be treated to comply with the permit. Therefore at a 640 acre hillslope vineyard property, we estimate average total cost for road erosion control actions would be less than or equal to $30,000. We estimate that approximately 100 miles of unpaved roads located within hillslope vineyard properties, will need to be upgraded in order to comply with the General Permit.

c) To develop more precise cost estimates for farm plan development as currently required under the General Permit, we contacted Laurel Marcus, the Executive Director of the California Land Stewardship Institute (CLSI) that has developed and implemented the Fish Friendly Farming Program. Between 2004 and present, CLSI has developed almost 500 farm plans covering approximately 71,000 of vineyard properties within the permit area (CLSI, 2016). Based on their experience, Ms. Marcus indicates that vineyard managers and/or property owners are usually able to complete most of the elements of the farm plan independently. CLSI staff assistance is typically needed to help complete farm plan elements relating to roads and creek/river corridors. In most cases, the total amount of CLSI staff effort would not be expected to exceed 40 hours (L. Marcus, personal communication, 2017). Applying an average billing rate of $125 per hour, the total cost to the landowner of farm plan development ($125/hr x 40 hr) would be a one-time cost less than $5000. For the smallest vineyard (i.e., five acres) that would need to be enrolled under the General Permit, this cost could be worked into a business plan and accrued over a ten-year permit implementation period, corresponding to an estimated cost $100 per planted acre per year. At a larger vineyard, the cost per planted acre would be less.

d) Considering all the above, and available information regarding operating costs for vineyards in the permit area (Cooper et al., 2012; Smith et al., 2010 and 2016), we have estimated compliance costs for a typical small (10 acre) valley floor vineyard, and also for a small (10 acre), medium (20 acre), and large (100 acre) hillslope vineyard located on a large property (640 acres). Under these examples, total compliance costs would range from about $20-to-$315 per acre per year corresponding to a 1-to-8 percent increase in total operating expenses for typical vineyards located within the permit area. Following development and implementation of the farm plan, which would occur during the first decade of the permit, estimated compliance costs would decrease substantially, corresponding to < 2 percent of total operating expenses.

Comment 5: Monitoring program (scope, focus, technical advisory committee, group option for all tiers)

Stakeholders provided a wide range of comments regarding the monitoring program including specific suggestions regarding the purpose of monitoring, the constituents that should be monitored, and also that the utility, costs, feasibility, and suggested that applications (i.e., BMP effectiveness determination and/or TMDL target evaluation) need to be carefully considered.

The Napa County RCD and agricultural organizations both recommended that the monitoring focus primarily on evaluation of attainment of the numeric targets for sediment (i.e., streambed substrate conditions). BayKeeper, the City of Napa, ICARE, and Sarah Martsen Bittner all recommended that the permit include monitoring of pesticides to evaluate attainment of permit conditions and performance standards. The City of Napa also recommended that nutrient discharges be monitored. The City of Napa and ICARE also recommended that turbidity be monitored to evaluate BMP effectiveness as related to sediment discharges.

The Napa RCD, NOAA Fisheries, and the California Land Stewardship Institute mentioned aspects of the development and implementation of a monitoring program, where the establishment of a technical advisory committee (TAC), and/or training of vineyard managers to collect monitoring data, is recommended to ensure that the information developed is useful and objective. California Land Stewardship Institute also mentioned the need for a competitive bid process to ensure objectivity in selection of a qualified contractor.

Response to Comment 5

5.1 The primary focus of monitoring program

We agree with the Napa RCD and agricultural organizations that the streambed monitoring program to evaluate attainment of numeric targets for sediment in the Napa River watershed is essentially ready to go, once funding is secured, and that this information is directly relevant in evaluating achievement of the Basin Plan's water quality objectives for sediment, settable material, and population and community ecology. As such, Water Board staff recommends that the streambed monitoring program replace proposed soil infiltration capacity monitoring, and be the primary focus of required monitoring under the General Permit.

A key challenge in making the streambed monitoring program the primary focus of monitoring is the need for an institution to step forward to take on the responsibility of administering a group monitoring program[11], as this type of monitoring would not be cost effective for individual permittees to conduct, would yield unreliable results if not done properly, and would be time intensive for the Water Board staff to administer in working with individual permittees. Also, this type of monitoring would not be applicable to vineyard properties that do not include stream channel reaches within their property that provide potential spawning and rearing habitat for anadromous salmonids, the areas where numeric target monitoring would be conducted. In the Sonoma Creek watershed, all of the above points would apply and also an additional analytical step would be needed, which is to conduct a pilot monitoring study therein, to inform development of a full monitoring program for sediment numeric targets. For Sonoma, the targets include streambed permeability, pool filling, and substrate composition/percent fines.

In both watersheds, in order to provide context for interpretation of the results of substrate monitoring, watershed sediment yield also needs to be estimated during the period when substrate conditions are monitored because there would be substantial inter-annual variability as a function of water year type and also in response to BMP implementation. Also, although annual compliance reporting and BMP implementation monitoring would document progress with regard to BMP implementation, a complimentary effort would also be needed to evaluate BMP effectiveness as related to sediment

[11] Ideally, an agency or organization based in or nearby to the Napa River watershed would administer the monitoring program therein, and a local agency or organization based in or nearby to the Sonoma Creek watershed would administer a group monitoring program for that watershed.

discharges. A variety of approaches to evaluate BMP effectiveness may be appropriate including turbidity monitoring, measurement of sediment sources, reservoir sedimentation surveys or other approaches. Water Board staff will work with approved Third-Party Programs and/or work to help establish a technical advisory committee to develop an informative approach to monitoring for BMP effectiveness.

The General Permit, as currently drafted, specifies that two years following its adoption, permittees shall submit for review and approval a study plan for monitoring, and five years following adoption that they shall submit for review and approval a final report presenting the results of the monitoring program[12]. It also contains a provision that allows the Executive Officer to revise at any time, the monitoring and reporting required under the General Permit. These process steps provide an opportunity to further refine monitoring and reporting requirements following permit adoption.

5.2 Cost and Feasibility

Consistent with typical costs for monitoring being conducted elsewhere in California to comply with permits for agricultural properties, we would work with vineyard groups on the goal of keeping total cost of a Group Monitoring Program, including administration cost, to less than $10 per acre per year. Provided that an institution steps forward to take on the responsibility of administering a Group Monitoring Program, it should be quite straightforward for individual permittees to satisfy the General Permit's monitoring requirements by paying a set fee. Since the Water Board cannot require Group Monitoring, the General Permit will be revised to describe objectives and scope for an individual monitoring option. At a minimum, individual monitoring would include an assessment of BMP effectiveness as related to sediment discharges, and where applicable, measurement of substrate conditions as related to numeric targets. This type of monitoring would not be as cost effective to conduct at an individual property because of the economies of scale related to monitoring plan development and implementation. Following adoption of the General Permit, Water Board staff is committed to working with a Technical Advisory Committee and/or with approved Third-Party Programs, to develop a practical and cost effective option for individual dischargers.

5.3 Add monitoring of nutrients

In response to the City of Napa's concerns, we note that premium wine grapes have the lowest nutrient application rate of any important row crop cultivated in California (Rosenstock et al., 2013, Table 1, p. 75). Vineyard nutrient applications are precisely targeted, through 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.

Also, 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.

[12] In the Sonoma Creek watershed, the pilot monitoring program would be the first phase of a full monitoring program, requiring at least three years of monitoring to be completed to inform submittal of the final report.

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.

Considering all of the above information, Water Board staff does not recommend adding nutrients to the list of constituents that would be required to be monitored under the General Permit. It is possible that nutrient monitoring could be added in future years, most likely as part of the Surface Water Ambient Montioring Program (SWAMP) that is conducted by Water Board staff.

5.4 Add monitoring of pesticides

As described in our response to Comment 2.4, the pesticides of high concern that currently are applied in large amounts over extensive areas within the area subject to the General Permit include pendimethalin, pryaclostrobin, trifloxystrobin, oxyfluorfen, cyprodinil, triflumizole, and imidacloprid. This preliminary list will be revised at a future date based on further assessment of potential risk, and/or in response to significant changes in pesticide use within the permit area.

Within five years of the adoption of the General Permit, SWAMP expects to conduct a pilot monitoring effort in the Napa River and Sonoma Creek watersheds to sample for the occurrence of pesticides of high concern, as needed to further inform assessment of potential to impacts to water quality. Based on the results of this proposed pilot monitoring effort, permittees may be required at a future date to monitor high concern pesticides and/or aquatic toxicity, but we do not recommend revising the General Permit to require such monitoring at this time.

5.5 Technical Advisory Committee, training vineyard managers to measure turbidity and/or to perform other types of monitoring, and technical contractor selection

As indicated in our response to Comment 5.1, we support the establishment of a Technical Advisory Committee (TAC) to help develop and refine various aspect of the monitoring that would be required under the permit.

With regard to the measurement of turbidity to evaluate BMP effectiveness, Water Board staff agrees that training is needed, and we recommend that sampling protocols and/or training be developed by working with a TAC and/or approved Third-Party Programs once the General Permit is adopted.

As related to selection of a technical contractor (to conduct a Group Monitoring Program), as indicated in our response to Comment 5.1, a necessary first step is for an capable institution to step forward that

agrees to take on the responsibility of administering such an effort. Assuming an institution does step forward to take on this administrative responsibility, we are confident that its process for choosing a contractor would be objective and focused on selecting the best qualified contractor.

Comment 6: Compliance deadlines need to be revised (too aggressive or too lax)

Agricultural organizations and several grape growers commented that "the timelines allotted are not sufficient particularly since many growers are still unaware of the proposed regulations." The California Land Stewardship Institute also commented that the "three years proposed for all vineyards …to complete farm plans is [in]adequate. We would suggest at least six years."

NOAA Fisheries commented that they strongly support the proposed time schedules for achieving performance standards. BayKeeper commented that the timelines for achieving compliance "must be shortened to assure the most rapid compliance", and "There has been no progress in reducing sediment loads over the seven years since the TMDLs were adopted." ICARE also commented that "It has taken 28 years to get regulations on non-point pollution. This wait has cost the public valuable public trust losses, such as swimming, fishing and recreation in the Napa River and Sonoma Creek."

Response to Comment 6

Water Board staff recommends that the current compliance deadlines in the General Permit be maintained. We note that the consideration of General Permit adoption is occurring more than eight years following the Water Board's adoption of the Napa River sediment TMDL and nine years following adoption of the Sonoma Creek sediment TMDL. Throughout TMDL development, and in the period following TMDL adoption, Water Board staff has worked with vineyard managers and property owners, agricultural organizations, local non-profits, and government agencies to encourage development of farm planning programs and has helped secure substantial funding for farm plan development and implementation, road-erosion control projects, and river restoration projects.

Lots of progress has occurred since TMDL development and adoption. For example, between 2004 and the present, CLSI while working in the Napa River and Sonoma Creek watersheds, has completed farm plans for almost 500 vineyard properties totaling approximately 71,000 acres (CLSI, 2016). Following initiation of the LandSmart farm planning program in 2013, local RCDs in the past three years have developed farm plans that cover approximately 10,000 acres of vineyard property located within the area proposed for General Permit coverage. Considering these two programs alone, Water Board staff estimate that 75 percent-or-more of the total property area that would be covered under the General Permit already has completed farm plans, that could be certified under the General Permit 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 currently contained in the General Permit.

Considering the progress to-date in farm plan development and implementation, the importance of restoring properly functioning substrate conditions in a timely fashion, and the range of concerns expressed, Water Board staff recommends that the compliance deadlines be maintained.

Comment 7: Definitions of Qualified Professionals and Certification

The California Land Stewardship Institute (CLSI) and NOAA Fisheries commented that the ecological expertise is needed in the evaluation of stream setbacks and/or practices implemented to manage stream bank and bed erosion, in particular, in incised channel reaches. Consequently, CLSI and NOAA

Fisheries recommend that the farm plan certification team also include professionals with biological and/or ecological expertise.

CLSI also commented that the use of the term "certified" in the General Permit is inconsistent with its common usage, where the professionals that certify something (in this case, the farm plan) are not affiliated with, and do not have other potential for conflicts of interest with the organization and/or individuals that prepared the farm plan.

Linda McGlochlin commented that the State Board of Engineers, Geologists, and Geophysicists have sole legal authority with regard to practice of geology or engineering, including on their own property. However, the … "permit prohibits the practice of … licensed geologists and engineers in preparing a Farm Plan for a property if they had a financial interest in the property." "I am concerned that this "conflict of interest" provision … implies that geologists and engineers cannot be relied upon to follow the code of conduct [for engineers and geologists] for work on their own properties. This exclusion … seems very restrictive. Tax payer money should not be spent on having the RWQCB determine the qualifications of licensed engineers and geologists."

The Napa RCD also commented that they "fully support inclusion of Qualified Professionals in the role of developing and certifying farm plans for compliance with the Vineyard WDR program. However, the current required documentation for an individual to be approved is unrealistic and will significantly limit the number of approved qualified professionals."

In summary, these comments relate primarily to who can prepare/develop a farm plan, who can certify a farm plan, and what types of requirements would be appropriate for the Water Board to specify in these regards.

Response to Comment 7

Water Board staff recommends that the General Permit be revised, such that:

a) Attachment C of the General Permit would be revised to recommend that a Third-Party Program, in the development and certification of a farm plan, also involve staff with expertise in biology and/or ecology, as related to stream protection or restoration;

b) The General Permit does not include a process for approval of Qualified Professionals, as this could reasonably be considered a restriction on professional practice of State licensed engineers and geologists; and

c) The definition of a "certified" be revised to read as follows:

"Certified means that 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.

Where the certification process does not involve independent scientists (i.e., scientists not employed by the Third-Party Program), the Farm Plan also must be stamped and/or signed as applicable by a Qualified Professional employed by the Third-Party Program to indicate that she/he concurs that upon full implementation, the Farm Plan would achieve applicable performance standards for sediment and storm runoff control.

These recommended changes would avoid restrictions on who could prepare a farm plan, and clarify that "certified" means[13]: a) either independently peer-reviewed, or b) that a Qualified Professional working for the Third-Party Program has stamped and/or signed the farm plan to concur that upon full implementation, the farm plan is expected to achieve performance standards for sediment and storm runoff control.

We expect that these recommended changes would alleviate potential bottlenecks related to Farm Plan development, and where farm plans are complete and technically sound, little additional effort would be required by staff working for an approved Third-Party Program to certify the farm plan.

If the process for obtaining certification does create a bottleneck in the farm planning and implementation process, we would expect that approved Third-party Programs will be in an excellent position to hire additional staff or contractors to meet the demand for certification on a timeline consistent with the compliance deadlines specified in the General Permit.

Comment 8: Specification of performance standards

8.1 NOAA Fisheries and the CLSI commented that streambank stabilization using hard engineering methods (e.g., rip-rap, gabions) should be strongly discouraged and/or restricted under the proposed General Permit because such practices, although they may be effective in controlling erosion locally, will increase erosion in the channel overall. In this same regard, NOAA Fisheries and CLSI also commented that the permit should require that properties pledging to implement passive restoration, allow bank erosion to progress, the only permissible intervention would be establishment of native riparian plant species, and that hard structures (i.e., rip-rap, gabions) be prohibited.

The Napa RCD commented that existing pipelines and pumps should be allowed within the stream setbacks that are established and maintained under the permit to qualify for enrollment under Tier 1.

8.2 CLSI also commented that it may not be possible to determine the cause of channel erosion. The permit should provide greater guidance in how to interpret observations of channel erosion downstream of hillslope vineyards. The Living Rivers Council also provided specific comments regarding guidance that should be included in the General Permit with regard to development of hydrologic models, and to demonstrate attainment of the performance standard for bed and bank erosion.

Response to Comment 8.1: Performance Standards for protection of stream-riparian corridors

Water Board staff recommends that, the General Permit's "**Water Quality Concerns**" section, the following text be added as a new finding:

> "Where hard engineering approaches are used to stabilize streambanks (rip-rap, gabions, etc.), even if effective locally, these structures often compromise channel stability and habitat complexity in adjacent channel reaches, resulting in an overall increase in erosion and decrease in habitat complexity within the affected channel reach. Such unintended impacts are further magnified within incised channel reaches, where the force per unit area exerted on the channel bed and banks is substantially increased as a consequence of incision."

[13] Merriam Webster defines "certified" as "to test as being true or as meeting a standard."

Staff also recommends that in the General Permit's "**Water Quality Control Plan**" section, the following text be added to further inform compliance:

> "Consistent with USEPA's Section 404(b)(1) Guidelines for Dredge and Fill Material, in determining the circumstances under which wetlands filling may be permitted[14], in general, it is preferable to avoid wetland disturbance. When this is not possible, disturbance should be minimized. Mitigation for lost wetland acreage and values through wetland restoration or creation should only be considered after disturbance has been minimized."

In **Attachment A** to the General Permit (Farm Plan Requirements), in the "**Stream Riparian Habitat Protection and Enhancement Actions**" section, staff recommends that the following text be added:

> "Consistent with US EPA's 404(b)(1) Guidelines, placement of hard engineering structures (e.g., rip-rap, gabions) in stream channels shall be avoided to the maximum extent practicable. Hard engineering structures may only be placed within a stream channel, where the incorporation of bioengineering techniques involving deformable constructed streambanks would not be sufficient to protect human safety, and/or existing buildings and other critical infrastructure located in the setback, and a significant threat has been confirmed.
>
> Marin RCD (2007) and Cramer et al. (2012) provide useful guidance with regard to bank stabilization techniques for stream channels that are consistent with the protection of ecological and geomorphic functions. Fischenich (2001) provides useful information regarding stability thresholds for bioengineering techniques."

Also, in **Attachment A** (Farm Plan Requirements), under the heading **Fully Protected Stream Corridors**, staff recommends that the following text be revised as indicated below:

> "Where a Vineyard Property has:
>
> a) Established and maintained stream setbacks, as measured from the top of bank, along all unconfined alluvial channels that are on average greater than or equal to 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**,** including managed bank retreat, with vegetation restoration only, through Farm Plan implementation and/or participation in an approved Third-Party Program, 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.

[14] A wetland is defined as "an ecosystem that depends on constant or recurrent, shallow inundation or saturation at or near the surface of the substrate (National Academy of Sciences, 1995)." Wetland habitats include, for example, stream channels, and a suite of riparian forest types. Any stream or riparian corridor management action that involves temporary or permanent placement of fill within wetlands, including all waters of the United States, is subject to the requirement to obtain a Clean Water Act section 401 certification from the Water Board, and additional permits as applicable from other local, State, and federal agencies.

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.

"A stream-riparian corridor greater than or equal to four-times the bankfull channel width would include the bankfull channel (1 channel width) and setbacks from the top of bank, on both side that are greater than or equal to 1.5 times the bankfull channel width. Where the stream-riparian corridor is ≥ four-times the bankfull channel width, the channel would be unconfined, and free to evolve over time via meandering and/or avulsion processes (Montgomery and Buffington, 1998; pp. 33-34; Church, 2002), which are central to the formation and maintenance of bar-pool topography (Jaeggi, 1982) and complex and interconnected channel habitat that native fish and wildlife species have evolved with in gravel-bedded streams that traverse unconfined alluvial valleys (Montgomery, 2003, pp. 25-31)."

Recommended changes to related footnotes (in Attachment A of the General Permit):

"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.

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."

Response to Comment 8.2: Guidance per attainment of performance standards for storm runoff from hillslope vineyards

With regard to comments provided by the Living Rivers Council (LRC) that relate to guidance for development of hydrologic models, see our response to Comment 3.2(d). We concur that all of these specifications must be included as part of a hydrologic model prepared to evaluate attainment of the peak runoff criteria.

In response to the comment provided by CLSI, we note that the storm runoff performance standards for bed and bank erosion apply to those locations where a hillslope vineyard discharges directly into a headwater channel reach, and/or an alluvial channel is located within a canyon (where typically, alluvial deposits are modest and bedrock is located within a meter of the surface of the streambed).

LRC also commented that additional guidance is needed with regard to the specification of a protocol to demonstrate attainment of the performance standard for bed and bank erosion. Water Board staff is involved in research to identify existing protocol(s) that could be recommended for this purpose, including the protocols suggested by LRC. Prior to Water Board's consideration of adoption of the General Permit, staff will either recommend additional of an existing protocol (as part of the permit package) or revising Attachment E of the General Permit (Monitoring and Reporting Requirements) to include the requirement to develop and implement a monitoring protocol for assessment of attainment of the bed and bank erosion performance standard.

Comment 9: Clarifications

9.1 The Los Carneros Water District commented that for reservoirs receiving treated wastewater, that the required water quality control actions be limited solely to the protection of water quality in downstream channel reaches located on parcels under the same ownership (as the reservoir).

Response to Comment 9.1

Water Board staff concurs with this recommended change, which is consistent with our expectation of what is practicable and feasible for a permittee, and therefore we recommend the following revision to Attachment A of the General Permit (Farm Plan Requirements), under the heading **Water Quality Controls for Reservoirs …**

> "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 <u>located on parcels under the same ownership as the discharger,</u> as related to the operation and maintenance of reservoirs that receive recycled water, and which may discharge to surface waters of the State.

Comment 9.2: Napa RCD requested clarification regarding how often Tier 1 dischargers would be required to provide certification reports.

Response to Comment 9.2

A certification or re-certification report would only be required once every five years.

Comment 9.3: Napa RCD requested a clarification regarding whether it is possible for dischargers to move between Tiers, and if so, to consider how this could increase the financial burden over time to the dischargers that remain outside of Tier 1, as related to the cost of the group monitoring program (Tier 1 dischargers are exempt from this monitoring requirement).

Response to Comment 9.3

Water Board staff confirms that permittees would be able to move between tiers consistent with achievement of the conditions for enrollment within the given tier. Consistent with typical costs per acre for Group Monitoring that permittees are paying under other agricultural water quality control permits previously implemented elsewhere in California, and also considering the pilot monitoring program (Stillwater Sciences,2013), Water Board staff expect it will be possible to conduct a Group Monitoring Program focused primarily on evaluation of sediment TMDL numeric targets for a total cost (including administration expenses) of $5-to-$10 per acre per year throughout the first decade following adoption of the General Permit. We also expect that as BMP implementation and monitoring progresses, it should be possible to further refine the scope and/or frequency of required monitoring. Also, note that Attachment E of the General Permit (Monitoring and Reporting Requirements), can be revised subject to review and approval of the Executive Officer, providing flexibility in adaptively updating these requirements.

Comment 9.4: Napa RCD commented that "with proper maintenance, the existence of pipelines and pumps … in a riparian setback area … should be allowed."

Response to Comment 9.4

<u>We concur. See our response to Comment 8.1, as related to Footnote 17, where we recommend the following change:</u>

> <u>"[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.</u>

Comment 9.5: Is it possible for Third-Party Programs collect and aggregate annual compliance reports for individual dischargers?

Response to Comment 9.5

No. Annual compliance reports are required for each vineyard property that is enrolled in Tier 2 or Tier 3 of the proposed General Permit.

Summary of Staff Recommended Changes to the General Permit:

1. The Vineyard Property definition be revised to read: "A Vineyard Property is defined by a parcel, or contiguous parcels under the same ownership, each of which is developed to include a vineyard."

Please note that under the General Permit, the typical threshold for enrollment would be those parcels where a five acre-or-larger vineyard is developed.

2. The permit should be revised to provide additional supporting rationale for conditions related to control of pesticide use and discharges.

3. The General Permit should be revised to avoid potential inconsistencies with Napa County regulations as related to stream setback width, timing of grading and earthmoving activities, performance standards for drainage facilities, and guidance per attainment of the performance standard for storm runoff (as related to peak storm runoff in specified design storms).

4. The General Permit should be revised to provide Tier 3 permittees with the option of participating in a Group Monitoring Program.

5. The General Permit should be revised to clarify that the performance standards for roads would only apply to hillslope vineyard properties.

6. Guidance should be added to the General Permit related to the attainment of performance standards for storm runoff from hillslope vineyards (as related to bed and bank erosion), and for the protection and management of stream-riparian corridors.

7. The General Permit should be revised to replace soil infiltration capacity with streambed monitoring to evaluate attainment of numeric targets for sediment as the primary focus of required monitoring. Complimentary monitoring of watershed sediment yield, and evaluation of BMP effectiveness, also would be needed to provide context and interpretation of results of the streambed monitoring program.

8. Within five years of permit adoption, Water Board staff intends to conduct a pilot monitoring effort to sample for the occurrence of pesticides of high concern in the Napa River and Sonoma Creek, as part of the surface water ambient monitoring program.

9. The definitions of Qualified Professional and Certified (farm plan) should be revised to address comments received. With the recommended changes, the primary effects on the General Permit would be: a) not including a process for approval of Qualified Professionals; and b) that farm plan certification teams include biology and/or ecology expertise. These changes have the potential to increase local capacity as related to farm plan development and to enhance the effectiveness of stream-riparian management actions, but are not expected to affect capacity for farm plan certification.

10. For vineyard properties that include a reservoir that receives treated wastewater, and that reservoir has the potential to discharge to a water of the State, the General Permit should be revised to clarify that the permittee is only responsible for BMP implementation in downstream water bodies located on parcels that it owns.

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