Preservation Ranch

Project Phasing and Best Management Practices for Timber Harvesting

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Prepared by;

Nicholas Kent, Registered Professional Forester #2418
Kent & Associates
Forest Resources Planning and Management
P.O. Box 968
Forestville, CA 95436
(707)887-7900

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Introduction

This document describes the best management practices (BMP) that will be used and references applicable California Forest Practice Rules (FPR) for timber operations associated with the Timber Conversion Plan (TCP) and Timber Harvest Plan (THP) on the Preservation Ranch to protect water quality, soils, wildlife, fisheries, and cultural resources. The BMPs described in this document correspond to items in a conversion THP , and include citations to the applicable FPR sections in Title 14, of the California Code of Regulations (14 CCR).

The Registered Professional Forester (RPF) listed in the THP will provide advice during timber operations and will make necessary amendments to the THP. The RPF will be the applicant's representative who communicates with State and Federal Agency personnel during and after timber operations.

The Licensed Timber Operator (LTO) listed in the THP will be responsible for conducting timber operations and erosion control measures within harvest units as permitted by the THP and associated documents regulating timber harvesting. LTO's will also be responsible for upgrading seasonal roads to permanent status, and installing the permanent erosion control measures on Project roads.

Following the conclusion of timber operations, the applicant's Vineyard Engineer and Contractor will be responsible for additional temporary and permanent vineyard erosion control measures required by the County of Sonoma Vineyard Erosion and Sediment Control Ordinance (VESCO) and necessary Storm Water Pollution Prevention Plans. These additional erosion control measures will be installed after timber operations are completed by the LTO in association with vineyard and reservoir development.

Project Phasing

Timber conversion harvesting and Project roads will be constructed in phases as a condition of the Timber Conversion Permit. For ease of implementation and to simplify agency review, the Project has been divided into eight Working Areas based on similar geographic location and the common use of logical access roads. Project road segments that provide access to the conversion sites for a particular Working Area are made a part of that Working Area, and one or more LTOs will be made responsible for portions of a or an entire Working Area during timber operations. Each Working Area includes specific conversion sites and project roads, and includes specific Forest Restoration areas that will be restored concurrently. The size and location of the eight Working Areas was based on each amalgamated group of future vineyards being logically connected geographically. The Working Areas were sized to facilitate a one day pre-harvest inspection for an Area, and typically one LTO is expected to be responsible for timber operations for each of the eight separate Working Areas, although a LTO may be responsible for more or less than one Working Area. LTO responsibility areas will be shown on maps amended to the THP after approval. The following is the project implementation phasing schedule (see Table 1 below).

The first Implementation Phase, Phase 1, requires that permanent dedications of the project's primary public benefits occur prior to any timberland conversion occurring. Implementation Phases 2, 3, and 4 correspond to project years 1, 2 and 3 of the THP, and assigns specific Working Areas for each Implementation Phase. Forest Restoration areas (refer to Project Description) are also divided into 8 Restoration Areas that correspond to each of the Timber Conversion Permit (TCP) Working Areas. Completion of the designated Implementation Phase Working Area Forest Restoration, including tanoak management and tree planting is required prior to proceeding with subsequent Implementation Phases. For example, Implementation Phase 2 includes Working Areas 1 and 2 therefore the Forest Restoration corresponding to those two Working Areas must be completed prior to starting implementation of Phase 3, and prior to starting the Working Areas included in Phase 4, the Forest Restoration corresponding to Phase 3 must be completed.

Table 1. Project Implementation Phasing Schedule

Implementation Phase 1					
Project Component	*Windy Gap Wildlife Preserve Easement*	*Soda Springs Park Dedication*	*Public Trail Easement*	*One-Forest Timber Easement*	*Voluntary Parcel Merger*
Acres, Miles, or Number	2,702 acres	221 acres	5 miles	14,868 acres	160 parcels merged into 63 parcels

Implementation Phase	**Working Area**	**Vineyard Acres**	**TCP Acres**	**Restoration Acres**	**Restoration/TCP (ratio)**	**Project Road Miles**
2	1	322	275	664	2.4	19
	2	276	276	551	2.0	15
3	3	266	266	533	2.0	7
	4	413	359	937	2.6	15
	5	120	106	246	2.3	11
	6	112	85	228	2.7	3
4	7	206	180	476	2.6	17
	8	86	86	103	1.2	4
Total		1,801	1,633	3,738	2.3	**91**

Detailed Operations Maps: Refer to Appendix 1 which includes an example of detailed operations maps of Working Area 1. This type of detailed map will be created for each Working Area for the Conversion THP. The three types of maps included are: (1) harvest operations and road construction maps; (2) soil and erosion hazard rating maps; and (3) geologic and geomorphic features related to landslide maps.
Specific road points and watercourse crossings that correspond to specific Working Area Project roads are described in an amendment to the Preservation Ranch Road Plan. Refer to Appendix 2 for an example of the portion of the Road Plan that corresponds to Working Area 1.

Geologic and geomorphic features related to landslides in and near the proposed vineyards and project roads were identified and field mapped by licensed geologists employed by Kleinfelder Inc. (See Landslide Hazards Evaluation). Additional analysis of site specific geologic conditions that may be impacted by the Project Roads and the conversion activities are currently being assessed by a consulting Certified Engineering Geologist, Matt O'Connor of O'Connor Environmental Inc., and their report will be submitted prior to submittal of the Conversion THP. Geologic assessment will follow guidelines of the Department of Mines and Geology Note 50 – Factors Affecting Landslides in Forested Terrain.

Scope of Responsibilities for Planning, Reporting, Operations, and Long-term Maintenance

The following is a description of the scope of responsibilities for the Registered Professional Forester, the Licensed Timber Operator, and the Project Vineyard Engineer and Contractors. The Plan Submitter is Premier Pacific Vineyards (PPV), and their responsibilities include coordinating the transition of responsibilities from the Licensed Timber Operator to the Project Vineyard Engineer and Contractors, and they are responsible for road maintenance and erosion control maintenance after THP completion.

Registered Professional Forester

The Registered Professional Forester (RPF) is responsible for preparing the Conversion Timber Harvest Plan (THP) for submission to Cal Fire. The RPF will provide professional advice throughout the timber operations to the Plan Submitter, the Licensed Timber Operators (LTO), and the Vineyard Engineers and Contractors. The RPF will conduct an on-site pre-work meeting with the LTO to review the general THP provisions and also discuss specific provisions for any practices that are in lieu of or are exceptions or alternative practices to the standard Forest Practice Rules. The RPF shall be present, or ensure that the RPF's supervised designee is present, on the logging area at sufficient frequency, and at least monthly during operations, to review the progress of operations and advise the LTO and timberland owner regarding any issues or necessary modification(s) to the THP, 14 CCR 1035.2 Interaction between RPF and LTO, and 14 CCR 1035.1 RPF Responsibility. The RPF will be responsible for notifying Calfire of the commencement of operations,14 CCR 1035.4, checking the harvest areas to determine the timing of site preparation activities and to determine and advise when and where site preparation should end, on or prior to October 1,

and determine the location of buffer blocks (see tractor logging restrictions below); inspecting the harvest areas prior to October 15 to ensure proper FPR erosion control measures are in place; tracking cumulative periodic rainfall events during the winter period from October 15 to May 1 for winter period erosion control inspections; notifying the LTO of wet weather shutdown periods; and preparing monitoring reports for harvest areas and roads that will be submitted to the Regional Water Quality Control Board annually on June 30st , in accordance with the Project Waste Discharge Requirements. Other RPF responsibilities include, notifying the THP submitter, in writing, of their responsibilities pursuant to 14 CCR 1035 (a)(2), flagging THP boundaries and buffer block boundaries (described below), flagging unstable area 25 foot equipment exclusion zones, flagging watercourse protection zones, marking cut trees within watercourse protection zones, flagging new road construction, flagging road reconstruction points on appurtenant roads, preparing necessary amendments to the THP, and coordinating with the Vineyard Engineer and Contractors regarding transition from the LTO to the Vineyard Development contractors.

Licensed Timber Operator

Licensed Timber Operators (LTO) will conduct the timber harvesting operations and road reconstruction and construction work per the provisions of the THP. Each LTO listed in or amended into the THP is responsible for a specific designated portion of a Working Area or Working Areas (harvest areas and road sections).

The LTO is responsible for operations in specific Working Area up to the point in time that Cal Fire certifies a partial completion report for that specific mapped area (14 CCR 1035.3). In the completed areas after FPR (Forest Practice Rules) erosion control measures have been installed and prior to October 15, the RPF shall schedule a meeting with the Cal Fire Forester, the LTO, and the Applicants Vineyard Engineer and Vineyard Contractor to review completed areas for conformance with the THP requirements and FPRs. Upon conformance with THP requirements as determined by Cal Fire, the RPF shall file a partial completion report submitted to Cal Fire within 30 days of the CDF inspection (PRC 4585). After the completion report has been accepted and signed by Cal Fire the responsibility for and maintenance of erosion control facilities and installation of temporary permanent vineyard erosion control measures will be the responsibility of the Plan Submitter, 14 CCR 1050 Erosion Control Maintenance, who will contract with the Vineyard Engineer and Contractors to perform this work.

Vineyard Engineer and Contractors

Subsequent to the LTO completing the conversion timber harvest operations, the Vineyard Engineer is responsible for notifying Cal Fire, the County, and the Regional Water Quality Control Board (WQ) when temporary or permanent erosion control measures have been installed in conjunction with vineyard and reservoir development. This notification will allow for agency inspection of harvested and converted areas for compliance with the Timber Conversion Permit and VESCO. Such notification will occur prior to October 15 to allow any remedial work to be done prior to the onset of the winter period which starts November 15. The Plan Submitter/Timberland Owner is responsible for maintenance of erosion control

facilities after certification of the Cal Fire Work Completion Report until the duration of the erosion control maintenance period which is up to three years as required by the THP, 14 CCR 1050 Erosion Control Maintenance.

Harvest Systems

LTO's will conduct all timber harvesting and site preparation activities on the conversion areas, and will be responsible for reconstruction and new construction of Project roads. Logging will be done with ground based tractor equipment including crawler tractors, rubber tired skidders, front end loaders, excavators, and hydraulic loaders. Trees will be cut by hand felling or by mechanical felling with a feller buncher, which is a tractor mounted tree cutting head that can cut trees and place them in small piles. Piles of logs are then skidded (dragged) with one end suspended by a rubber tired skidder or crawler tractor to log landings. Landings will be located within the conversion areas, and are flat areas approximately ¼ acre in size where tree limbs and tops are removed and the tree is cut into logs. Tractor logging will be done such that skid trails and landings are not cut deeply into hillsides, and there will be no terracing of slopes for installing vineyards. Slopes are relatively gentle, 0-38% (averaging 15% to 20%) on the conversion areas, and soil disturbance and grading during logging will be kept to a minimum to retain the natural gradient of the hillsides. Minimal blade work is required to skid logs to landings as most of the conversion areas were recently logged in the late 1980's and early 1990's, skid trails and landings are in place and many of these features will be reused. Conifer saw logs will be transported offsite on logging trucks to local sawmills. Hardwood logs may be transported offsite in the form of logs, firewood, or biomass fuel, or they may be chipped on-site.

Sub-merchantable size material < 6 inches in diameter such as branches and tops and stumps will be chipped on site, with chips hauled offsite or spread on bare soil on the edges of vineyards and along watercourse protection zones for erosion control, or this material will be piled and burned in fire safe locations when permissible by Cal Fire and the Northern Sonoma County Air Pollution Control District and when the potential for escape of fire is low. Burn piles will be monitored by the LTO to ensure full combustion of fuels, and to ensure fire does not escape and cause a wildfire.

Site Preparation

The LTO is responsible for site preparation, which will follow timber harvesting and removal of forest products, and will consist of clearing soils of roots, stumps, and woody material with a tractor using a brush rake or an excavator. Stumps will be pulled out of the ground with a crawler tractor or an excavator. Unmerchantable woody material will be tractor piled and chipped or tractor piled with the piles burned on site, 14 CCR 917.2 Treatment of Logging Slash to Reduce Fire Hazard. Chips will be spread as a ground cover and sediment filter on the edge of watercourse management areas and spread in the adjacent forested areas, but shall not be piled such that soils or water quality are deleteriously affected. Construction

staging areas where slash is burned or chipped shall be located at each vineyard block. Larger redwood and Douglas-fir stumps may be collected and stockpiled on site for use as large woody debris for stream restoration projects within the Gualala River watershed,14 CCR 915 Site Preparation.

Slash Disposal

The LTO is responsible for slash disposal. All conifers and hardwoods will be harvested and stumps and slash removed from the vineyard sites/conversion areas by the LTO. Refer to site preparation above for treatment of slash. If slash is placed beyond the THP boundaries, it must not be placed in areas that restrict future timber harvesting, that are steep and/or unstable, or that are in or near watercourses and watercourse zones where material could enter the watercourse. Slash packing will be allowed in watercourse zones for erosion control and to promote seeding of natural vegetation.

Soil Characteristics and Slope Stability

The soil types on the conversion areas have moderate and high erosion hazard rating due to average slopes of 15% to 20%, not exceeding 38%,and absence of vegetative cover within the conversion areas following timber harvesting.

Active unstable areas on the conversion areas have been identified by licensed geologists and will be completely avoided during timber operations. All known unstable areas have a 25 foot equipment exclusion zone, which shall be flagged by the RPF prior to the start of operations.

Tractor Logging Seasonal Restrictions

Site Preparation Restrictions:

Site preparation is defined as the activity that takes place after logs are cut and skidded, and includes clearing the soil of roots, stumps, and woody material. Site preparation activities shall be restricted to the period May 1 to October 1 to allow for installation of temporary or permanent erosion control measures prior to October 15. This restriction will limit the potential for soil erosion, and resulting negative impacts on beneficial uses of water in downstream watercourses, and will also allow adequate time for site prepared areas to be properly stabilized by the Vineyard Engineer and Vineyard Contractors. All site prepared areas that have been completed, as per FPR, must be properly stabilized by the Vineyard Contractor using temporary or permanent erosion control described in the Vineyard Erosion Control Plan prior to October 15.

Tractor Logging Restrictions:

To limit the potential of ground disturbance that could cause soil erosion and resultant impacts to water quality, tractor logging will only occur during dry weather periods between May 1 to November 15. To limit potential impacts to Class III watercourses, tractor logging

operations will not occur after October 1 within 30 feet of Class III watercourses with slopes less than 30% or within 50 feet of Class III watercourses with slopes 30% and greater. Some areas may have timber harvesting completed with site preparation activities not yet started; for these areas FPR erosion control measures will be implemented by November 15, including waterbar installation and other measures necessary to prevent sediment from affecting beneficial uses of water including seeding and mulching or slash packing disturbed soils near watercourses.

Buffer Blocks: The following is a seasonal restriction to limit the effective harvested area prior to the winter period. In areas where trees are harvested but it is known by the RPF that site preparation and follow up soil stabilization by the Vineyard contractor will not be completed by October 15, harvest areas shall not exceed 30 acres in size and shall be separated by a logical un-harvested unit at least 20 acres in size (*buffer block*) and no harvesting shall occur within the Class III ELZ in these 30 acre harvest areas. The RPF shall be responsible for mapping out and flagging the boundaries of the buffer blocks where this restriction is needed as determined in consultation with the Plan Submitter and Vineyard Engineer. Buffer blocks shall be described and shown on a map in a minor deviation submitted to Calfire submitted prior to October 1. The RPF shall notify the LTO in writing and shall meet with the LTO in the field to show the location of the buffer blocks. These buffer blocks may be harvested in subsequent years after adjacent 30 acre blocks have been completed.

General Operating Season Restrictions:

All tractor roads shall have drainage and/or drainage collection and storage facilities installed as soon as practical following yarding and prior to either (1) the start of any rain which causes overland flow across or along the disturbed surface within a Watercourse Lake and Protection Zone (WLPZ) or within any Equipment Limitation Zone (ELZ) or Equipment Exclusion Zone (EEZ) designated for watercourse or lake protection, or (2) any day with a National Weather Service forecast of a chance of rain of 30 percent or more, a flash flood warning, or a flash flood watch, 14 CCR 916.9(m) Protection and Restoration in Watersheds with Threatened or Impaired Values.
To prevent soil compaction and soil erosion no timber operations shall occur when saturated soil conditions are present. Saturated soil conditions are defined in the Forest Practice Rules, 14 CCR 895.1 Definitions.

Forest Practice Rule Erosion Control Measures

Skid roads and seasonal timber access roads within the conversion area that could concentrate water shall have rolling dips and waterbreaks constructed that disperse runoff to the greatest extent possible, and in sensitive locations near WLPZ's and ELZ's fiber rolls, slash packing, or other erosion control devices shall be installed at the outlets of these drainage structures to capture sediment and prevent sediment from reaching watercourses. Refer to Table 2. Maximum Distance between Waterbreaks for minimum waterbreak spacing which is an increase over the standard rules for trail/road gradient less than 26%, 14 CCR 914.6 Waterbreaks. Maximum slopes to operated on within the conversion area are 38%.

Table 2. Maximum Distance Between Waterbreaks

	Gradient of Seasonal Logging Road or Tractor Road
EHR Rating	0-40% (all roads)
High	75’
Moderate	100’

Logging Road Reconstruction and Construction

The main access roads to the conversion areas will be upgraded from the current seasonal condition to a permanent all weather surfaced storm proof condition. Refer to the Preservation Ranch Timberland Conversion/Vineyard Development Road Plan (Road Plan) for a description and location of these roads and for a description of storm proofed condition. Road construction and reconstruction will be limited to the period May 1 to October 15.

Within the conversion areas existing seasonal truck roads allow access to log landing sites. Several additional short road segments will be built to provide access to conversion areas currently not served by the existing road system. A road inventory has been performed for each access road which is included in the Road Plan. All Project roads identified in this Road Plan shall be upgraded or constructed to storm proofed conditions utilizing current design techniques of outsloping road surfaces with rolling dips installed where possible (California Salmonid Stream Habitat Restoration Manual, Part X, 2006, CDFG). Roads will be hydrologically disconnected from watercourses wherever possible and practical. In some limited locations where road bank seepage or steepness of road grade precludes outsloping, roads will be crowned with cross drain culverts properly located to reduce potential water quality impacts from runoff.

After outsloping and grading is completed the designated primary access roads will be upgraded from the current seasonal road surface to an all weather surface with the application of 8 inches or more of compacted road gravel.

Watercourse crossings will be upgraded to handle 100 year flows where necessary, and critical dips will be installed in the event of culvert failure. Class I Watercourse crossings on the Property are presently existing permanent bridges that do not prevent fish passage.

One road from Evans Ridge to the Lookout on Hoover Ridge will be upgraded to a two lane permanent road (minimum 18 feet width). Other roads will be one lane roads (14 feet width) with turnouts.

Future Timber Harvesting Road Access and Landing Use Within and Adjacent to Vineyards

Permanent access routes for timber harvesting that require the use of roads that bisect a vineyard will be unimpeded. Existing roads within the new vineyards shall be retained that allow timber management activities to continue unaffected by vineyard management activities with vineyard avenues and trellising designed to allow unimpeded access for

logging trucks and harvesting equipment including large cable yarders (12 foot width) as necessary. Log landing areas will be retained in key locations within and adjacent to vineyard areas that allow room for log processing and adequate deflection (lifting logs in the air) for cable yarding from timbered areas outside the conversion areas, as well as placement of buried deadmen (usually logs buried 4+ feet in the ground) used for attaching guy lines to stabilize a cable yarder.

Table 3. Annual Timber Operating Periods for Conversion

Heavy Equipment Activity	Start Date	End Date	Erosion Control Completion Date	Responsible Party
Timber Harvesting	May 1	November 15	November 15	LTO
Road reconstruction and road construction	May 1	October 15	October 15	LTO
Site Preparation, and all harvest operations within 50 feet of Class III waters	May 1	October 1	October 15**	LTO up to October 1, Vineyard Contractor after October 1 ***
Slash Disposal - chipping	May 1	November 15		LTO
Slash Disposal – burning	When safe after November 15	April 1 or end of burn season		LTO
Timber Felling	Year round			LTO

**Temporary and Permanent as per Vineyard Erosion Control Plan

*** Vineyard Contractor is responsible after timber operations are completed

The winter period for the Project is defined as starting October 16 and ending April 30.

THP Monitoring

Three successive stages of monitoring of FPR erosion control measures on THP harvest areas and Project roads will be performed by the RPF that correlate to the phase of construction (see table 4) .

Implementation Monitoring

Implementation monitoring consists of visual monitoring immediately after construction and/or prior to October 15 to determine whether management measures, such as installation of erosion control facilities were carried out as planned on harvest/conversion areas, road construction, road reconstruction, and in particular for operations within 50 feet of a Class III watercourse. The intent of this monitoring is to ensure facilities are properly stabilized prior to the winter period.

Forensic Monitoring

Forensic Monitoring consists of visual monitoring to determine whether significant sediment impacts to water quality is occurring as a result of timber operations. This monitoring is conducted at least two times during the winter period and after significant rainfall events defined as 5 inches of precipitation falling in 48 hours. The responsible professional, RPF, for this monitoring effort is required to track rainfall totals.

Effectiveness Monitoring

Effectiveness Monitoring consists of visual monitoring to evaluate whether particular management measures were successful in preventing significant sediment impacts to water quality during the previous winter period, and is conducted after March 15 and prior to June 15.

Monitoring Reporting

An Annual Monitoring Report will be submitted to CDF and WQ on June 30 of each calendar year following timber harvesting and road reconstruction/construction operations, or as required by WQ.

Refer to the following table for monitoring responsibilities, and timing and frequency of monitoring efforts. This table corresponds to FPR erosion control facilities associated with timber operations and to road reconstruction/construction work performed. Vineyard Erosion Control Plan temporary and permanent vineyard erosion control facilities installed on converted sites that are installed after the completion of timber operations will be monitored by the Applicant or Applicant's Vineyard Engineer as described in the Vineyard Erosion Control Plan.

Table 4. Monitoring of Timber Harvest Area and Road Reconstruction/Construction FPR Erosion Control Measures

Activity	Responsible Contractor	On-Site Professional Monitoring	Timing and Frequency	Reporting Agency
Implementation Monitoring Timber Harvesting FPR erosion control measures, and Project Roads Reconstruction/Construction	LTO	RPF	April 1-October 15 At least once	CDF
Forensic Monitoring Timber Harvest Area FPR erosion control measures* and Project Roads. First three winters after work completed for FPR erosion control measures on timber harvest areas not yet completed*, and on Project Roads not within a completed area.	LTO	RPF	1. Prior to November 15	CDF, WQ
	LTO	RPF	2. After 10" precip. accumul. since October 15, and 3. after a 5" in 48 hour events 4. At least twice after November 15	CDF, WQ
Effectiveness Monitoring Timber Harvest Area not yet converted and Project Roads First three winters after work completed for FPR erosion control measures* and Project Roads.	LTO	RPF	March 15 to June 15	CDF, WQ

* FPR erosion control measures are installed by the LTO and are in put in place by October 15 in areas where site preparation has not been started after October 1 and the Vineyard Erosion Control Plan temporary and permanent vineyard erosion control measures have not yet been put in place. <u>If the areas is completed, the Vineyard contractor is responsible for installation and monitoring of vineyard erosion control measures and roads within the vineyard footprint.</u>

Watercourse Protection

Water quality best management practices will protect water resources to the highest degree possible and at least equal to the standard rules of the FPR. Due to the fact that the Gualala River is an EPA 303(d) list impaired water body for both sedimentation and temperature, the FPR Threatened and Impaired rules are required to be complied with, 14 CCR 916.9 Protection and Restoration in Watersheds with Threatened and Impaired Values.

All Class I and Class II watercourses have been avoided and have extended or maximum no harvest buffer zones as discussed below. (See Table 5.) All Class III watercourses have also been avoided and will not be filled, except for designated vineyard tractor crossings to be used to access vineyard blocks without road access or within vineyard blocks with limited external access, and for installation of underground storm water drainage pipe crossings. (See Table 6.) Watercourse classifications are defined as follows with specific protection measures that will be implemented to ensure protection of the beneficial uses of water.

Watercourse Protection Zones

Class I Watercourses

Class I Watercourses are defined as domestic supplies, including springs on site and/or within 100 feet downstream of the operations area, and/or fish always or seasonally present onsite, includes habitat to sustain fish migration and spawning, 14 CCR 916.5 Procedures for Determining Watercourse and Lake Protection Zone Widths and Protective Measures. No vineyards are within 200 feet of a Class I Watercourse.

No timber harvesting, clearing, burning, or equipment operations shall occur within this extended WLPZ for the life of the Project with the exception that equipment may utilize existing truck roads.

Class II Watercourses

Class II Watercourses are defined as with fish always or seasonally present offsite within 1000 feet downstream, and/or aquatic habitats for non-fish aquatic species; excludes Class III waters that are tributary to Class I waters, 14 CCR 916.5 Procedures for Determining Watercourse and Lake Protection Zone Widths and Protective Measures.

A number of Class II watercourses are adjacent to the conversion areas. These Class II watercourses shall have a flagged 100 foot Watercourse and Lake Protection Zone (WLPZ) regardless of side-slope steepness. This is an extended WLPZ in most locations, as the standard FPR zone width is 50 feet for slopes <30%, is 75 feet for slopes 30-50%, and is 100 feet for slopes >50% (14 CCR, 916.5). Conversion area maximum slope is 38% and most locations where a Class II watercourse is present have slopes less than 50% upslope of the watercourse and lake transition line. No timber harvesting, clearing, burning, or equipment operations shall occur within this 100 foot WLPZ area immediately adjacent to conversion

areas for the life of the Project, with the exception that equipment may utilize existing truck roads.

Table 5. Class I and Class II Watercourse Protection Measures and Zones

Watercourse	Description	Zone	Protected Width	Erosion Control Best Management Practices *
Class II	Standard	WLPZ-extended for <50% slopes	100' minimum regardless of slope	No timber harvesting, no vegetation removal , and no equipment operations in the zone
Class I	Standard	Extended WLPZ	200' minimum regardless of slope	No timber harvesting, no vegetation removal, and no equipment operations in the zone

Class III Watercourses

Class III watercourses are defined as having no aquatic life present, watercourses showing evidence of being capable of sediment transport to Class I and II waters under normal high water flow conditions after completion of timber operations (see 14 CCR 916.5 Procedures for Determining Watercourse and Lake Protection Zone Widths and Protective Measures).

To ensure protection of beneficial uses of water on all Class III watercourses within the conversion area, 75 percent surface cover shall be required within the Equipment Limitation Zone (ELZ) for raindrop energy dissipation and to filter suspended sediment as well as increase infiltration rates of overland flow prior to it reaching the watercourse (see 14 CCR 916.4(6) Watercourse and Lake Protection). The requirement for maintaining 75 percent surface cover is a condition normally required for Class II watercourse protection, but is being utilized on Class III watercourses for added protection. "Surface cover" shall consist of understory vegetation and leaf litter, lopped slash (18" maximum height from ground level), or chipped wood fiber spread over the soil. Grass seeding and other sediment control requirements are outlined in the Preservation Ranch Vineyard Development & Erosion Control plans.

Some ELZ's on edges of vineyards or where steep slopes are present will have standard protection, but most ELZ's will have the in lieu practices as described below. There are four treatments depending on the condition of the channel and side slopes. Treatment A is standard protection and applies to watercourses where shade affecting the vineyards is not an issue, or where sensitive conditions exist requiring minimum disturbance of the ELZ. Treatments B, C, and D are in lieu practices that vary from the standard protections but provide the equivalent or better water quality protection.

The proposed (2009) threatened and impaired watercourse protection rules (T&I Rules) for Class III watercourses are outlined below. .

Standard Class III Protection (T&I proposed – July 24, 2009)

- **Treatment A**

(1) Establish a 30foot wide ELZ on both sides of the watercourse for slopes less than 30% and an additional 20 foot ELZ where sideslopes are >30%. The ELZ is measured from the Watercourse Transition Line (WTL). Within the ELZ:

(A)No new construction of tractor roads permitted

(B) No ground based equipment on slopes >50%

(C) Ground-based operations are limited to existing stable tractor roads that show no visible evidence of sediment deposition being transported into the adjacent watercourse or to the use of feller-bunchers or shovel yarding.

(2) Retain all pre-existing large wood on the ground within the ELZ that is stabilizing sediment and is necessary to prevent potential discharge into the watercourse.

(3) Retain all pre-existing down wood and debris in the channel zone.

(4) Retain hardwoods, where feasible, within the ELZ for 25 feet measured from the WTL.

(5) Retain all snags (except as required for safety) within the ELZ

(6) Retain all non-merchantable conifers within the ELZ except as necessary for cable corridors, crossing construction and safety reasons.

(7) Retain all trees in the ELZ and channel zone which show visible indicators of providing bank or bed stability, excluding sprouting conifers that do not have boles overlapping the channel zone. Visible indicators of stability include roots that permeate the bank or provide channel grade control.

The proposed "in lieu" practices are as follows:

In Lieu Practices for Specific Mapped Class III Watercourses

- **Treatment B, C, D, In lieu of (1):** The outer five feet of the ELZ shall allow tractor harvesting and will be cleared of vegetation and stumps to allow vineyard tractors to turn in this area at the end or on the edge of vine rows. Install six inches of wood chips on the cleared ground in the outer five feet of the ELZ to act as a filter and sediment trap. Wood chips will be generated by chipping of slash on conversion units. Alternatively an erosion control cover crop (filter strip) will be established in this five foot zone.

  Explanation and Justification: The outer five feet of the ELZ can be more effectively buffered from sediment effects caused by overland flow by placing a mulch of six inches deep by five feet wide of wood chips, or an erosion control cover crop (filter strip) on the ground in this strip. This practice will achieve greater

protection of water quality than the standard rule, as this sediment trap will more effectively catch sediment than forest ground cover.

- **Watercourse Crossings, In lieu of (1)(A):** New tractor trails may be constructed on slopes <50% where a crossing is needed to access a vineyard with no other access, and to install underground storm water drainage pipe pipes. These crossings shall be shown on THP maps.

  Explanation and Justification: For vineyard tractor crossings, a permanent rock ford sized to handle 100 year flows will be installed and approaches within the 25' area from the WTL will be stabilized by installing 1 ½ inch + sized gravel, 6 inches deep. Less potential impact to water quality is anticipated than the use of a typical temporary crossing. A stabilized crossing will have the same effect as the standard rule. Where underground storm water drainage pipes cross a watercourse, the channel and banks will be returned to a stabilized condition using rock and slash packing where necessary.

- **Treatment C, and D, In lieu of (4), (5), and (6):** On side slopes of 20% and greater, conifers and hardwoods may be removed from the ELZ or topped if they cast shade into the conversion area as long as a minimum retention of 50% of vegetative cover from a combination of understory and/or overstory vegetation is maintained in wooded areas, excluding grasslands. Retain hardwoods where feasible within the ELZ. Where 50% vegetative cover over the ground does not currently exist, no hardwoods will be cut and native shrubs or hardwood trees will be planted in the ELZ to reach this level.

  Explanation and Justification: The narrow strip of vegetation retained in the ELZ within the vineyard will expose conifers to windthrow which has the potential to increase soil disturbance when root masses are pulled out of the ground during a strong wind event. Allowing removal of conifers outside the channel zone will reduce potential damage to soils and vineyards from windthrow events. Trees may be topped or removed as long as vegetative cover over the ground does not fall below 50%. When there is not 50% vegetation present over the ground, or removal of conifers brings existing vegetation level below this standard, then additional native hardwood and shrub will be planted to reach this minimum cover level. This practice will have the same effect as the standard rule.

- **Treatment B**, **In Lieu of (4), (5), (6), and (7)**. On side slopes less than or equal to 20% where the watercourse channel is relatively shallow (less than 12 inches deep), and stream gradient is less than 15%, the overstory conifers and hardwoods, snags, and channel trees will be harvested to reduce impacts of shading on the vineyards. Understory vegetation will be retained. The area within 25 feet of the channel will be replanted with native grass mix, or slash packed, to reach 75% surface coverage. An excavator will be used to punch slash into the ground and will be sitting outside the 25 feet area from the channel. No stumps shall be removed within the area that is 25

feet from the channel, and no equipment shall enter this area, except at pre-flagged crossings.

Explanation and Justification: These watercourses have gentle side slopes and the channels tend to be shallow and relatively undefined except during surface flow events. These shallow, low flow watercourses have the least potential to be impacted by the adjacent vineyard operations due to the gentle side slopes. They also have the least topographic relief and highest potential for trees to shade the vineyards. The intent is to retain a 25 foot buffer zone with high sediment filtration capabilities. Where overstory tanoak, live oak, madrone, bay, and redwood are cut, the stumps are expected to sprout back retaining root strength, and these sprouts will be managed by manual pruning and topping in the future. The slash packing method will encourage seeding of natural vegetation into this area such as coyote brush and Manzanita. No farming equipment will enter this zone. Flows in these channels are relatively light, and the cutting of channel trees is not anticipated to destabilize these channels, as no stumps will be removed within the channel or within 25 feet of the channel. This practice will have the same effect or greater protection as the standard rule, as all areas within the 25 foot buffer zone will be stabilized to filter sediment from overland flow prior to flow entering the channel.

Pursuant to 14 CCR 916.4 (c)(1) and (c)(3) Watercourse and Lake Protection rules, and proposed T&I Rules (14 CCR 916.9 (h)) for Class III watercourses, these in lieu practices provide for erosion control, soil stabilization, and channel zone protection, and are designed in these locations to be sufficient to protect water quality and will provide at least equal protection as the standard rule requiring an equipment limitation zone and requiring retention of filter strip properties to maintain soil stability of the zone.

The boundaries of the no equipment zone shall be flagged by the RPF prior to the start of operations, with flagging or wooden stakes placed at 25 feet from the WTL for Treatment Codes B and C, 45 feet from the WTL for Treatment Code D, and either 30 feet or 50 feet from the WTL depending on slope for Treatment Code A. Refer to Table 6 Class III Protection Treatments and Codes for a matrix description of treatments.

No timber operations shall occur within 50 feet of Class III watercourses after October 1 and prior to May 1, unless the area has been completed and temporary or permanent erosions control has been installed by the Vineyard Engineer and Contractor according to the Vineyard Erosion Control Plan. Refer to Tractor Operations seasonal restrictions above regarding timing of operations within the ELZ.

Equipment used in timber operations shall not be serviced in locations where servicing will allow grease, oil or fuel to pass into lakes or watercourses(see 14 CCR 914.5 (a)).

Table 6. Class III Protection Treatments and Codes

Treatment Code	In Lieu Practice	Channel Gradient	Side Slope Gradient	Retention	No Equipment Operations Buffer Zone	Added Protection	Outer 5' of 30' or 50' ELZ
A	Standard ELZ	Na	All slopes	Standard retention	30' slopes <30% 50' slopes 30%+	na	na
B	(1), (4), (5), (6), (7)	15% or less	20% or less	All Understory in 25' from WTL area	25'	Slash pack or plant native grass to reach 75% surface coverage	6" deep wood mulch or engineered grass filter
C	(1), (4), (5), (6)	na	Less than 30%	50% cover from a combination of overstory and understory if a non-grass area	25'	Plant native shrubs to meet the 50% cover; add packed slash, wood chips or native grass to reach 75% surface coverage	6" deep wood mulch or engineered grass filter
D	(1), (4), (5), (6)	na	30% +	50% cover-combination of overstory and understory if non-grass	45'	Plant native shrubs to meet the 50% cover; add packed slash, wood chips or native grass to reach 75% surface coverage	6" wood deep mulch or engineered grass filter

Fuel Storage/Handling:

The LTO is advised that all state and federal regulations pertaining to the handling and storage of fuel must be adhered to during logging operations. These regulations include the California Aboveground Petroleum Storage Act with Amendments and the Environmental Protection Agency Regulations on Oil Pollution Prevention (40 CFR 112). In addition, secondary impermeable containment will be installed at all refueling/servicing areas which are regulated by the above mentioned laws.

Biological Resources

Scoping for biological resources that are present on and near the conversion areas has been done by consulting wildlife biologists and botantists under the direction of Kleinfelder Inc. Appropriate surveys for sensitive species/resources have been done and are continuing as necessary in coordination with qualified wildlife/fisheries biologists, botanists, and regulatory agency staff. The survey results were used to determine potential impacts, avoidance areas, and mitigation/public benefit opportunities and have been incorporated into the project design. Protection Measures: Biological resources will be protected in consultation with US Fish and Wildife Service for federally listed species and with California Department of Fish and Game for state listed species.

Snags

Snags within conversion harvest units will be harvested for safety reasons. To mitigate loss of raptor perch, roost and nest trees on ridge top conversion areas, an easement/restriction on all commercial forestlands will require that two of the largest Douglas fir trees per acre located between 200 feet and 500 feet from the edge of a vineyard shall be permanently marked and retained prior to timber operations. The permanent retention of these large trees will provide future raptor nesting and roosting platforms. Currently, there are a very small number of scattered individual old growth redwood trees but no old growth conifer (late seral) stands on the Property. Existing individual live old growth redwood trees, including those within the conversion areas (approximately three trees) will be permanently marked and protected via restrictive conservation easement.

Late Succession Forest Stands

No late succession forests are located on the property or within 500 feet of conversion areas.

Cultural Resources

A cultural resource assessment has been done for all conversion areas and Project roads with additional investigation regarding the significance of the identified sites being conducted during the Spring and Summer of 2009. Based on the final results of this work, protection measures will be developed by a Professional Archaeologist in consultation with Cal Fire archaeologists and the Tribal Historic Preservation Officer. A confidential archaeological study has been prepared by William Self & Associates and Roscoe & Associates, 2007 and will be supplemented with the ongoing work once completed.

Appendix 1. Maps for Working Area One: Road and Timber Harvest Operations, Soil and Erosion Hazard Rating, Geologic and Geomorphic Features Related to Landsliding

These maps are for example purposes only, and edits may be necessary depending on changes in vineyard shape or changes in field conditions.

Appendix 2. Working Area 1 Road Asessment Points