

**Erosion Control Plan  
for  
Fisher Track I  
Vineyard Development**

**Project Site Address:**

APN 018-120-022  
1415 Howell Mountain Rd  
Angwin, CA 94508

**Preparation Date:**

November 21, 2018

**Prepared for:**

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# Erosion Control Plan

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## A. Narrative

The applicant would like to permit vineyard development on the subject site located at APN 018-120-022, 1415 Howell Mountain Rd, Angwin, CA. Access to the site is from Howell Mountain Rd. Property is gated; call ahead for entry.

### 1. Land Clearing, Grading or Earthmoving Activity

Part of this application included review of an unpermitted 1.5 acre vineyard herein referred to as Block 3, for which retroactive approval is sought.

Two types of vineyard development include: (1) improvement of cover crop conditions in Block 3, but no new grading or earthmoving activities and (2) clearing, ripping, and land prep for new vineyard development. This vineyard permit application is largely devoted to new vineyard development with additional notes on steps needed to bring existing vineyard into compliance. New vineyard development will require clearing of 4.3 new acres to provide space to plant 3.1 acres of new vines. Slopes range from 14% to 22% with an average of 17%. No areas are greater than 30%. The need for spoils and disposal areas is not anticipated but would remain within the disturbed areas. Minimal rocks are expected, but any encountered will be stored within the disturbed area or may be used for vineyard avenues or landscaping. Other activities planned include trellising, installing end posts; disking; ripping (4'); vineyard layout; drip system installation; erosion control system installation; trellising, planting and seeding; and mulching of areas with no cover.

### 2. Existing Site Conditions

**Topography:** The subject site is located on the eastern side of Howell Mountain with a mix of steeply sloping terrain and gently-sloping ridgelines and knolls. The main driveway follows the crest of a ridgeline with vineyard development areas on 14%-22% slopes on the east and west flanks of the ridge.

**Vegetation:** The dominant vegetation type on the subject site and surrounding area is closed canopy Douglas Fir Forest. Some second growth redwood was mapped at the edges of the homestead clearing, which was logged 50 to 70 years ago during homestead development. Subcanopy includes tan oak, Pacific madrone, and big-leaf maple [1].

The subject parcel contains about 18.3 acres of forest canopy and about 2.3 acre of orchard and landscaping canopy; 0 acres of forest canopy will be cleared and 2.1 acres of orchard canopy will be cleared (this includes 1.4 acres from retroactive Block 3); in total 90% acres of canopy will not be disturbed. There are about 5 acres of shrub, brush, and grassland; 4 acres of grassland will be cleared (this includes 0.4 acres from retroactive Block 3); in total 20% of shrub, brush, and grassland will not be disturbed. Please note that PGE was conducting tree clearing work on the subject site at the time of the October

26, 2018 site inspection (crew vehicles visible in Item 7: Photos 1, 13, and 16); no clearing of timberland is planned by the owner.

**Soils:** The NRCS web soil survey lists the soil type in the vineyard area as 138 Forward Silt Loam [7]; see Site Plan – Aerial Map for soil boundaries. The Napa County Soil Survey describes the Forward series as well-drained soils on uplands derived from weathered rhyolite.

**Watershed:** The subject site is part of the Burton Creek planning watershed, that flows into the Maxwell Creek super planning watershed, that flows into the Pope Creek hydrologic sub-area, which is part of the Berryessa hydrologic area, which is part of the Putah Creek hydrologic unit that is in the Sacramento River hydrologic region. The project is not located in a municipal watershed nor a water-deficient area. The closest blueline stream is an unnamed tributary to Burton Creek that is located 1100 ft north of the closest disturbed area.

The plan preparers, William D. Lincoln and Sarah Pistone of LincolnAE LLC, visited the site on the following occasions:

DATE	PURPOSE
03/27/18	Site visit, project overview
10/26/18	Review site conditions, take photos, measure spring flows

The topographic map was prepared in 2002 by Napa County. Item 7 (Photos) contains photographs documenting existing conditions.

### **3. Natural and Man-Made Features**

The parcel has been a homestead development since the mid-1800s [3] and is comprised of residential buildings, meadows, and orchard surrounded by undeveloped forest. Two manmade ponds are on the property. An existing 1.5 acre vineyard is included at part of this Track I vineyard application. Two springs are developed for on-site domestic, landscaping, and vineyard irrigation. Three 5,000 gal redwood tanks are located near Spring #1 and one 5,000 gal green poly tank (See Site Plan and photos).

### **4. Location and Source of Water**

There are two springs located on the property.

DATE	GPM	af/yr
Spring #1	3.5	5.6
Spring #2	5.4	8.7
Total	8.9	14.3

Flow rates noted above were collected at the end of the dry season (October 26, 2018). They represent the lowest flow rates likely to be encountered with flows expected to

increase as water recharges over the winter. The existing vineyard (1.5 ac net) uses 74 gal/vine for a total usage of 0.6 acre-ft/yr. The proposed vineyard would add an additional 3.1 ac net for a total of 4.6 ac net. With projected use of 74 gal/vine/yr, about 1.9 ac-ft would be used annually for vineyard irrigation (See Attachment D [2]).

Three 2,500-gal redwood tanks and one 5,000-gal poly tank are currently located on the property, for a total of 12,500-gal existing storage capacity. Current irrigation practices were projected out to final vineyard develop needs and was found to be more than adequate; see summary below. Current practices allow for irrigation of two blocks at a time while also maintaining other on-site water uses. Future development could support this practice and supply water to all irrigation blocks.

	Vineyard acres (net)	Num Irrigation Blocks	Irrigation Block Size (acres)	Flow per Irrigation Block (gpm)	Flow from storage (gpm) <sup>1</sup>	Volume from Storage per set <sup>2</sup> (gal)
Current Usage Rates	1.5	5	0.30	4.8	0.70	211
Projected Usage Rates	4.6	14	0.33	5.3	1.62	485

<sup>1</sup>Watering two Irrigation Blocks at a time: (Spring Flow) - 2\*(Flow per Irrigation Block)  
<sup>2</sup>Irrigation event = 5 hrs

## 5. Soil Types/Soil Series

The NRCS web soil survey lists the soil type in the vineyard area as 138 Forward Silt Loam [7]; see Site Plan – Aerial Map for soil boundaries. The Napa County Soil Survey [8] describes the Forward series as well-drained soils on uplands derived from weathered rhyolite. Soils belong to Hydrologic Group C soils. See Soil Loss Analysis included with this application for more information and USLE calculations.

## 6. Critical Areas of Erosion and Slope Instability

No critical areas of erosion or slope instability were noted in the vineyard development area. The geotechnical report concluded the land is suitable for vineyard development as planned [4].

## 7. Erosion Calculations

See Soil Loss Analysis included with this application [6]. See Site Plan – Aerial Map for soil boundaries and flow lines used in soil loss analysis.

## 8. Erosion Control Methods

Silt fencing will be used along the downslope side of all vineyard blocks as noted on the site plan. Fiber rolls will be placed every 50-75 ft along topographic contours to distribute concentrated flow and break up slope lengths. Disturbed areas will be straw mulched at a rate of 2 tons per acre.

Vegetative erosion control areas are designated on the Site Plan: Topo Map and ECP Detail. Vineyard blocks will be seeded to a 75% - 80% permanent, no-till cover crop as noted on the plans. Species will consist of Blando Brome at 12#/ac., Crimson Clover at 6#/ac., Rose Clover at 6#/ac and Zorro Fescue at 8#/ac. Cover crop will be fertilized with 16-20-0 at a rate of 100 lbs/acre the first year and as needed in future years. All ECP measures will be completed by October 15. Any areas of cover crop that have less than their designated cover, will be seeded and mulched annually until adequate cover is reached. An annual cover crop of Dwarf Barley at 80#/ac. may be used in the first three years. In the first 3 yrs, cover crop may be tilled or disked after April 1st. Disked areas must be straw mulched with fiber rolls and silt fence installed prior to October 15. The project is farmed organically with no use of post emergent herbicide in practice or planned. No strip or spot spraying will be performed, all vineyard developments will be weeded with mechanical methods only.

### **9. Storm Water Stabilization Measures**

The vineyard installation will improve groundcover conditions, will reduce runoff potential and will result in a decrease in runoff across the site. See Hydrology Report included with this application [5]. Fiber rolls and silt fence will be placed at the end of grading season for sediment control.

### **10. Implementation Schedule**

The following is the proposed implementation schedule. Planting will occur in two phases. Schedule may shift due to permit approval timeline.

<b>DATE</b>	<b>ACTIVITY</b>
2014	<i>Retroactive:</i> Block 3 planting
	<i>Phase I: Block 1a, 1b, and 1c</i>
4/1/19	Clear and prepare planting area
6/1/19	Install erosion control, drip, trellis system and plant
10/1/19	Seed cover crop and straw mulch disturbed areas
	<i>Phase II: Block 2</i>
4/1/20	Clear and prepare planting area
6/1/20	Install erosion control, drip, trellis system and plant
10/1/20	Seed cover crop and straw mulch disturbed areas

BMP installation must be complete prior to October 15 of any given year.



## 11. Estimated Cost

The estimated cost of implementing the erosion and sediment control measures defined in this plan is about \$4000 per acre for new development areas and about \$500 per acre for existing vineyard. Costs are based on estimates outlined in the CA Stormwater BMP Handbook [9] and industry experience. Copies of BMP Fact Sheets were presented to site contact.

## B. Site Plan

The site plan for this project is included as Item 6: Site Plan, which includes the 7 ½ min USGS vicinity map, Topographic map and ECP detail, and Aerial Image Map. The Site Plan also includes specifications for erosion control BMPs and all items set forth in the document titled “Erosion Control Plan (ECP) Review Application Packet,” dated 02/11/2008 and created by the Napa County Conservation, Development and Planning Department.

## C. Scale and Contour Intervals for Erosion Control Plans

The site plan was prepared in accordance with the scale and contour requirements set forth in the document titled “Erosion Control Plan (ECP) Review Application Packet,” dated 02/11/2008 and created by the Napa County Conservation, Development and Planning Department.

## D. References

1. Attachments B&C, *Biological Resource Assessment with Botanical Survey and Delineation of Waters of the U.S. for Fisher Vineyard Project, APN 018-120-022, Napa County, CA*, prepared by Northwest Biosurvey, August 19, 2017
2. Attachment D, *Phase I Water Availability Analysis*, form
3. Attachment E, *Cultural Resource Evaluation of 1415 Howell Mtn. Rd, Angwin, CA, APN 018-120-022*, prepared by Wolf Creek Archeology, March 23, 2018
4. Attachment F, *Stability Report, Proposed Vineyard, 1415 Howell Mountain Road, Angwin, California*, prepared by PJC & Associates, Job No. 8223.01, May 19, 2019
5. Attachment G, *Hydrology Report – Fisher Vineyard, WinTR55 Modeling*, prepared by LincolnAE LLC, November 14, 2018
6. Attachment H, *Soil Loss Analysis – Fisher Vineyard, USLE Calculations*, prepared by LincolnAE LLC, November 14, 2018
7. *Custom Soil Resource Report for Napa County, California, Fisher Vineyard*, from USDA NRCS Web Soil Survey, November 2018
8. Lambert, G., Kashiwagi, J. et al., *Soil Survey of Napa County, California*, USDA in cooperation with UC Agricultural Experiment Station, August 1978
9. *Stormwater Best Management Practice Handbook Protal: Construction*, California Stormwater Quality Association, November 2009