PPI ENGINEERING
VINEYARD DESIGN
EROSION CONTROL
WATER DEVELOPMENT
DRAINAGE
PERMITTING
GPS/GIS

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MEMORANDUM

Date: October 6, 2020

To: Alexei Belov, Napa County Planning, Building, and Environmental Services

From: Matthew S. Bueno, P.E.
Rachel Rosasco, E.I.T.

Cc: John McDowell, Napa County Planning, Building, and Environmental Services

Re: Dooley Vineyard Track I ECP
4285 East Third Avenue, Napa, CA 94558
APN 052-460-020
Revised Soil Loss Analysis

This memo transmits the findings of a revised soil loss modeling analysis for the above-referenced Track I Erosion Control Plan (ECP). The original analysis submitted in April 2020 was revised to incorporate comments per Napa County Staff. The Universal Soil Loss Equation (USLE) was used to predict pre-project and post-project soil loss from within the proposed vineyard development areas. A combination of topographic maps, aerial imagery, and a site visit were used to determine pre-project transect locations, slopes, and cover values. Pre-project and post-project cover values are consistent with the United States Department of Agriculture (USDA) – Natural Resource Conservation Service (NRCS) publication titled "The Universal Soil Loss Equation Special Applications for Napa County, California" (May 1994).

A site visit was conducted on November 19, 2019 by Matt Bueno and Jennifer Johnson of PPI Engineering to determine the pre-project cover values for each block and/or transect area. All proposed development areas were inspected, and the cover values used in this analysis represent existing conditions at the time of the site visit. Post-project cover values were calculated using the percent cover specified in the ECP. An additional site visit was made with Napa County and PPI Engineering staff on June 16, 2020 to confirm existing conditions.

An additional transect area was added to the model covering the existing vineyard on-site, now included in the revised ECP. Pre-project conditions for the new transect area were estimated using historic aerial photos that show vegetation comparable to the undeveloped areas prior to vineyard development. The model, summarized on page 2 of the supporting documents (attached), predicts a net decrease of approximately 0.1 tons of soil loss per year for the project as a whole.

The ECP has been designed to ensure compliance with Napa County policies requiring no-net-increase in soil loss for post-project conditions. Please see the following supporting documents that contain data tables, calculations, maps of transect locations, and results from the analysis.

Dooley Vineyard Track I ECP
USLE Calculation Sheets

Dooley Vineyard Track I ECP
USLE Calculations
PPI Engineering
10/6/2020
RR

USLE Calculations - Block Summary Sheet

Proposed Block	Proposed Development Acres	Pre-Project Soil Loss (tons/year)	Post-Project Soil Loss (tons/year)	Net Increase/Decrease (tons/year)
1	1.03	0.45	0.36	0.09
2	0.29	0.02	0.02	0.00
Totals	1.32	0.47	0.38	0.09

Note: Individual estimates may not add to the totals due to rounding

Dooley Vineyard Track I ECP
USLE Calculations Pre-Project
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Pre-Project Block 1

Proposed Development Acres:	1.03
Soil Unit No. (100-182):	139
Soil Name:	Forward
K, Soil Erodibility:	0.17
T, Soil Loss Tolerance (tons/acre):	3
R, Rainfall:	45
Total Transect Length (ft):	205
Number of Segments:	1
Individual Segment Lengths (ft):	205
Segment:	
Gradient (%):	17
m:	
Individual LS:	4.01
Factor:	
Product:	
LS, Length and Steepness:	4.01
Total Transect Average Gradient (%):	17
Farming Practice:	Up & Down Hill
P, Practice Factor (Table 6)[1]:	1.00
Vegetative Canopy:	No Canopy
Canopy Cover:	0%
Ground Cover:	85%
Percent Grass:	80%
Percent Weeds:	20%
C, Cover (Table 5)[1]:	0.014
A, Soil Loss (tons/acre):	0.44
Soil Loss in Proposed Development (tons):	0.45

[1] Tables 5 & 6 - USLE Special Applications for Napa County

Dooley Vineyard Track I ECP
USLE Calculations Post-Project
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Post-Project, Block 1

Proposed Development Acres:	1.03
Soil Unit No. (100-182):	139
Soil Name:	Forward
K, Soil Erodibility:	0.17
T, Soil Loss Tolerance (tons/acre):	3
R, Rainfall:	45
Total Transect Length (ft):	205
Number of Segments:	1
Individual Segment Lengths (ft):	205
Segment:	
Gradient (%):	17
m:	
Individual LS:	4.01
Factor:	
Product:	
LS, Length and Steepness:	4.01
Total Transect Average Gradient (%):	17
Farming Practice:	Up & Down Hill
P, Practice Factor (Table 6)[1]:	1.00
Cover Strategy:	Permanent
Age of Development:	Over 3 Years
Ground Cover:	90%
C, Cover (Table 4)[1]:	0.011
A, Soil Loss (tons/acre):	0.35
Soil Loss in Proposed Development (tons):	0.36

[1] Tables 4 & 6 - USLE Special Applications for Napa County

Dooley Vineyard Track I ECP
USLE Calculations Pre-Project
PPI Engineering
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Pre-Project Block 2

Proposed Development Acres:	0.29
Soil Unit No. (100-182):	139
Soil Name:	Forward
K, Soil Erodibility:	0.17
T, Soil Loss Tolerance (tons/acre):	3
R, Rainfall:	45
Total Transect Length (ft):	127
Number of Segments:	1
Individual Segment Lengths (ft):	127
Segment:	
Gradient (%):	6
m:	0.5
Individual LS:	0.76
Factor:	
Product:	
LS, Length and Steepness:	0.76
Total Transect Average Gradient (%):	6
Farming Practice:	Up & Down Hill
P, Practice Factor (Table 6)[1]:	1.00
Vegetative Canopy:	No Canopy
Canopy Cover:	0%
Ground Cover:	85%
Percent Grass:	80%
Percent Weeds:	20%
C, Cover (Table 5)[1]:	0.014
A, Soil Loss (tons/acre):	0.08
Soil Loss in Proposed Development (tons):	0.02

[1] Tables 5 & 6 - USLE Special Applications for Napa County

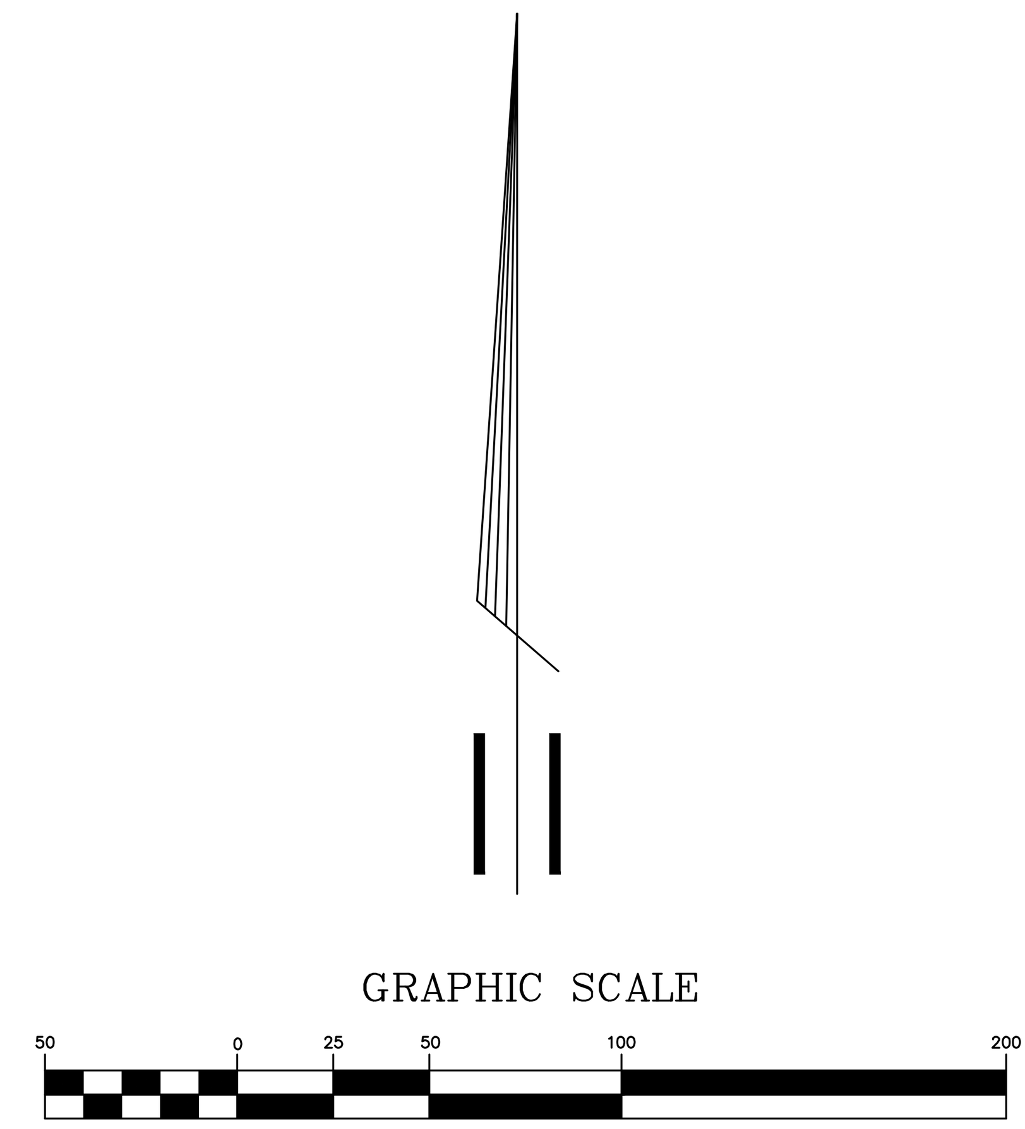
Dooley Vineyard Track I ECP
USLE Calculations Pre-Project
PPI Engineering
10/6/2020
RR

Post-Project, Block 2

Proposed Development Acres:	0.29
Soil Unit No. (100-182):	139
Soil Name:	Forward
K, Soil Erodibility:	0.17
T, Soil Loss Tolerance (tons/acre):	3
R, Rainfall:	45
Total Transect Length (ft):	127
Number of Segments:	1
Individual Segment Lengths (ft):	127
Segment:	
Gradient (%):	6
m:	0.5
Individual LS:	0.76
Factor:	
Product:	
LS, Length and Steepness:	0.76
Total Transect Average Gradient (%):	6
Farming Practice:	Up & Down Hill
P, Practice Factor (Table 6)[1]:	1.00
Cover Strategy:	Permanent
Age of Development:	Over 3 Years
Ground Cover:	90%
C, Cover (Table 4)[1]:	0.011
A, Soil Loss (tons/acre):	0.07
Soil Loss in Proposed Development (tons):	0.02

[1] Tables 4 & 6 - USLE Special Applications for Napa County

2018 NAPA COUNTY ORTHOPHOTO
TOPOGRAPHIC MAPPING SOURCE: PPI ENGINEERING CONTOURS, 2' CONTOUR INTERVAL, JUNE 2019
NAPA COUNTY LIDAR-GENERATED CONTOURS, 5' CONTOUR INTERVAL, 2003



GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

LEGEND

- PPI ENGINEERING 10' INDEX CONTOUR
- PPI ENGINEERING 2' INTERMEDIATE CONTOUR
- NAPA COUNTY 25' INDEX CONTOUR
- NAPA COUNTY 5' INTERMEDIATE CONTOUR
- APPROXIMATE PROPERTY LINE LOCATION
- EXISTING VINEYARD AREA
- EXISTING ROAD
- EXISTING FENCE
- EXISTING BUILDING
- EXISTING DITCH, APPROXIMATE LOCATION
- EXISTING CULVERT
- PROPOSED VINEYARD DEVELOPMENT AREA BY TRANSECT
- PROPOSED VINEYARD BLOCK BOUNDARY
- USLE TRANSECT SEGMENT WITH SLOPE
- PROPOSED VINEROW DIRECTION
- 178 / 139 SOIL TYPE BOUNDARY

USDA SOIL CLASSIFICATIONS:

123	COOMBS GRAVELLY LOAM, 2–5% SLOPES
139	FORWARD SILT LOAM, 5–39% SLOPES
178	SOBRANTE LOAM, 5–30% SLOPES

DOOLEY VINEYARD
4285 EAST THIRD AVENUE

EROSION CONTROL PLAN
SOIL LOSS ANALYSIS

PPI ENGINEERING
2800 JEFFERSON STREET
NAPA, CA 94558
707/253-1806 FAX 707/253-1604

DESIGN ENGINEER: M. BUENO

JOB NO: 11911801	SCALE: AS SHOWN	DRAWN BY: SM, JCJ	DATE: 10-06-2020	SHEET: 1
DWG. NO: 11911801U2				OF: 1