Soil Loss Analysis
Proposed Vineyard Expansion
Schramsberg Vineyards
1400 Schramsberg Road
St. Helena, CA 94574
020-390-007, 008, 011, 014, 01
May 6, 2024



The following analysis evaluates a vineyard planting proposal, to determine the project's potential to increase sediment delivery from the site. The project proposes development of approximately 14.1 acres of vineyard in seven new blocks, six of which are adjacent to existing blocks, under this applicant's ownership and management. This analysis, prepared by David Steiner, CPESC, CPSWQ, at the request of and in consultation with Mike Muelrath of Applied Civil Engineering, has adapted the Universal Soil Loss Equation (USLE) protocol developed by the Napa RCD, with guidance from the NRCS (SCS) Field Office Technical Guide, to requirements of the Napa County Engineering Division. Specifications of the Erosion Control Plan are also designed to assure adherence to the USDA soil loss tolerance "T." The transects modeled were drawn on the accompanying maps, provided by Applied Civil Engineering. The accompanying Excel spreadsheet[1] incorporates USLE principles and formulas, as follows:

- The **"R"** value is derived from the median value of the predicted range of 2-year/6-hour storms for this site, according to NOAA Atlas 14. A printout of the NOAA Atlas 14 table accompanies this analysis.
- The **"K"** (soil erosivity) and **"T"** (soil loss tolerance) values were taken from the Napa County Web Soil Survey. However, soil type identification in proposed Blocks 5 and 6 has been "fine-tuned" via analysis of soil samples taken by soil scientists at Anamosa, Inc., Vineyard Soil Technologies. (See accompanying map, with sample locations.)
- The **"LS"** value is calculated per algorithms based on USDA empirical data, using plotted slope lengths and gradients, over eleven representative transects through the proposed vineyard areas. As Block 1's conditions require installation and maintenance of mid-slope runoff control structures (diversions) to appropriately reduce soil loss, the original two transects (East and West) are each subdivided into three separately-modeled transects. These six evaluations are recorded in the second sheet of the Excel spreadsheet (*new usle schramsbergrev8.xlxs.*)
- Pre-project **"C":** Cover values were assigned based on site inspections on June 14 and July 5, 2022, and examination of aerial photographs (Google Earth, Napa County GIS).
    - Block 1 East: This site may have been graded as a firebreak during the 2020 Glass Fire, but was moderately forested prior to that event. A rock berm constructed on the site may be intended for sediment retention. The condition of this area at the time of inspection was very poor and largely unvegetated.

[1] *This Excel format segments modeled transects according to the most complex variable or USLE factor describing conditions along the transect. For example, a transect with five different types or levels of canopy or vegetative cover—but with uniform slope throughout—would nonetheless be assigned five separate slope entries (even though they were all the same), as the transect's segmentation (for all factors) would be based on cover, its most complex variable.*

- Segment 1: 50% High Brush; 30% Cover: 0 G, 100 W. C = .160
- Segment 2: 0 Canopy; 50% Cover: 0 G, 100 W. C = .135
- Segment 3: 50% Trees; 30% Cover: 20G, 80 W. C = .169.

- Block 1 West:
  - Segment 1: 50% High Brush; 30% Cover: 0 G, 100 W. C = .160
  - Segment 2: 75% Trees; 30% Cover: 0 G, 100 W. C = .130
  - Segment 3: 75% Trees; 30% Cover: 0 G, 100 W. C = .130
- Block 1A, North and South Transects.

This existing block was planted as a small, eastward extension of a "legacy" block, south of the proposed Block 1; the area is "proposed" for approval now, to bring it into compliance. Immediate pre-project conditions reflect 70% cover under non-tilled management. However the pre-project condition of this block must be evaluated on the basis of the 1993 aerial photography in the Napa County GIS, which shows what appears to be either an abandoned vineyard block or sparse brush. (The northwestern boundary, +/- 25 feet wide, was the denuded turnaround avenue for the then-existing vineyard block, to the west.) A reasonable estimate of the baseline cover for both transects is 75% High Brush; 70% cover: 50% G, 50% W. C = .022 x .5 + .053 x .5 = .0375.

- Block 2: 50% Trees; 60% Cover: 40G, 60W
  C = .038 x .4 + .082 x .6 = .0644
- Block 3: 50% Trees; 60% Cover: 10G, 90W
  C = .04 x .1 + .087 x .9 = .0823
- Block 4 North: Roughly the western half of this area appears to have been planted outside of an approved ECP. This area's pre-project condition has been evaluated on the basis of the 1993 aerial photography, and the condition of the undisturbed, eastern segments of the proposed block.
  - Segment 1: 0 Canopy; 70% Cover: 80G, 20W
    C = .028 x .8 + .067 x .2 = .0358
  - Segment 2: 0 Canopy; 70% Cover: 80G, 20W
    C = .028 x .8 + .067 x .2 = .0358
  - Segment 3: 50% High Brush; 60% Cover: 40G, 60W
    C = .038 x .4 + .082 x .6 = .0644
- Block 4 South:
  - Segment 1: 0 Canopy; 70% Cover: 80G, 20W
    C = .028 x .8 + .067 x .2 = .0358
  - Segment 2: 50% High Brush; 60% Cover: 40G, 60W
    C = .038 x .4 + .082 x .6 = .0644
- Block 5 North and South Transects: All segments were burned to less than 40% cover in the Glass Fire. The cover evaluated for use in these calculations was in the unburned woods above the proposed block.
  75% Trees; 60% Cover: 10G, 90W
  C = .039 x .1 + .084 x .9 = .0795
- Block 6, Segments 1 and 2:
  75% Trees; 80% Cover: 10G, 90W
  C = .012 x .1 + .041 x .9 = .038

- **Post-project** cover values are assigned based on the specifications of the current proposal, i.e., 85%, no-till (C = .017) for Block 1; 75%, no-till (C = .034) for Blocks 1A and 2; and 80%, no-till for Blocks 3, 4, 5, & 6 (C = .022) .

- Pre- and post-project "P" values are assigned the default maximum (1.00), indicating proposed row direction up- and down-hill.

Conclusion: With the assumption that the specified cover levels will be maintained, calculations predict that soil loss in the vineyard blocks will not exceed pre-project levels. (Please see accompanying Excel printouts.)

Schramsberg
Pre-Project USLE
April 29, 2024
2/6 storm, inches 2.07

Transect Identification		Schramsberg Block 1 West, Pre-project				
Acres		2.1	acres			
Total Slope Length		288	feet			
Number of Segments		3	segments			
	1	2	3	4	5	
R	80.25	80.25	80.25	80.25	80.25	
Factor (F)	0.19	0.35	0.46	0.00	0.00	
Slope Length	288	288	288			
Slope %	21.3	26.3	33.7			
LS	6.41	8.43	11.48	0.00	0.00	
K	0.43	0.43	0.43			
C	0.160	0.130	0.130			
P	1.00	1.00	1.00	1.00		
T	3.00	3.00	1.00	1.00		2.08
(F) (LS) (K) (C)	0.0838457	0.1650	0.2952	0.0000	0.0000	0.5441
A = (R) (F) (LS) (K) (C) (P)	6.73	13.24	23.69	0.00	0.00	43.67 tons/acre/year
						91.70 tons/year

Schramsberg
Post-Project USLE
April 29, 2024
2/6 storm, inches 2.07

Transect Identification		Schramsberg Block 1 West, Post-project				
Acres		2.1	acres			
Total Slope Length		296	feet			
Number of Segments		3	segments	(no diversions)		
	1	2	3	4	5	
R	80.25	80.25	80.25	80.25	80.25	
Factor (F)	0.19	0.35	0.46	0.00	0.00	
Slope Length	288	288	288			
Slope %	21.3	26.3	33.7			
LS	6.41	8.43	11.48	0.00	0.00	
K	0.43	0.43	0.43			
C	0.017	0.017	0.017			85NT
P	1.00	1.00	1.00			
T	3.00	3.00	1.00			2.08
(F) (LS) (K) (C)	0.0089086	0.0216	0.0386	0.0000	0.0000	0.0691
A = (R) (F) (LS) (K) (C) (P)	0.71	1.73	3.10	0.00	0.00	5.55 tons/acre/year
						11.64 tons/year

Transect Identification		Schramsberg Block 1 East, Pre-project				
Acres		2.2	acres			
Total Slope Length		327	feet			
Number of Segments		3	segments			
	1	2	3	4	5	
R	80.25	80.25	80.25	80.25	80.25	
Factor (F)	0.19	0.35	0.46	0.00	0.00	
Slope Length	327	327	327			
Slope %	17.3	22.5	21.6			
LS	5.18	7.34	6.96	0.00	0.00	
K	0.43	0.43	0.43			
C	0.160	0.135	0.169			
P	1.00	1.00	1.00	1.00		
T	3.00	3.00	3.00	1.00		3.00
(F) (LS) (K) (C)	0.0677221	0.1492	0.2327	0.0000	0.0000	0.4497
A = (R) (F) (LS) (K) (C) (P)	5.43	11.98	18.68	0.00	0.00	36.09 tons/acre/year
						79.39 tons/year

Transect Identification		Schramsberg Block 1 East, Post-project				
Acres		2.2	acres			
Total Slope Length		327	feet	(No diversions)		
Number of Segments		3	segments			
	1	2	3	4	5	
R	80.25	80.25	80.25	80.25	80.25	
Factor (F)	0.19	0.35	0.46	0.00	0.00	
Slope Length	327	327	327			
Slope %	17.3	22.5	21.6			
LS	5.18	7.34	6.96	0.00	0.00	
K	0.43	0.43	0.43			
C	0.017	0.017	0.017			85NT
P	1.00	1.00	1.00			
T	3.00	3.00	3.00			3.00
(F) (LS) (K) (C)	0.00719547	0.0188	0.0234	0.0000	0.0000	0.0494
A = (R) (F) (LS) (K) (C) (P)	0.58	1.51	1.88	0.00	0.00	3.96 tons/acre/year
						8.72 tons/year

Transect Identification		Block 1, Transect 1 West, Post-project					
Acres		0.9	acres				
Total Slope Length		134	feet	Above upper diversion			
Number of Segments		1	segment				
	1	2	3	4	5		
R	80.25	80.25	80.25	80.25	80.25		
Factor (F)	1.00	0.00	0.00	0.00	0.00		
Slope Length	134						
Slope %	23.9						
LS	5.09	0.00	0.00	0.00	0.00		
K	0.43						
C	0.017					85NT	
P	1.00	1.00	1.00	1.00			
T	3.00	3.00	1.00	1.00		3.00	
(F) (LS) (K) (C)	0.0371814	0.0000	0.0000	0.0000	0.0000	0.0372	
A = (R) (F) (LS) (K) (C) (P)	2.98	0.00	0.00	0.00	0.00	2.98	tons/acre/year
						2.69	tons/year

Transect Identification		Block 1, Transect 2 West, Post-project					
Acres		0.9	acres				
Total Slope Length		100	feet	Between diversions			
Number of Segments		1	segment				
	1	2	3	4	5		
R	80.25	80.25	80.25	80.25	80.25		
Factor (F)	1.00	0.00	0.00	0.00	0.00		
Slope Length	100						
Slope %	27.0						
LS	5.14	0.00	0.00	0.00	0.00		
K	0.43						
C	0.017					85NT	
P	1.00	1.00	1.00				
T	3.00	3.00	1.00			3.00	
(F) (LS) (K) (C)	0.0375675	0.0000	0.0000	0.0000	0.0000	0.0376	
A = (R) (F) (LS) (K) (C) (P)	3.01	0.00	0.00	0.00	0.00	3.01	tons/acre/year
						2.71	tons/year

Transect Identification		Block 1, Transect 3 West, Post-project					
Acres		0.4	acres				
Total Slope Length		59	feet	Below lower diversion			
Number of Segments		1	segment				
	1	2	3	4	5		
R	80.25	80.25	80.25	80.25	80.25		
Factor (F)	1.00	0.00	0.00	0.00	0.00		
Slope Length	59						
Slope %	33.2						
LS	5.10	0.00	0.00	0.00	0.00		
K	0.43						
C	0.017					85NT	
P	1.00						
T	3.00	3.00				3.00	
(F) (LS) (K) (C)	0.037309	0.0000	0.0000	0.0000	0.0000	0.0373	
A = (R) (F) (LS) (K) (C) (P)	2.99	0.00	0.00	0.00	0.00	2.99	tons/acre/year
						1.20	tons/year

Transect Identification		Block 1, Transect 1 East, Post-project					
Acres		1.2	acres				
Total Slope Length		172	feet	Above upper diversion			
Number of Segments		1	segment				
	1	2	3	4	5		
R	80.25	80.25	80.25	80.25	80.25		
Factor (F)	1.00	0.00	0.00	0.00	0.00		
Slope Length	172						
Slope %	15.6						
LS	3.27	0.00	0.00	0.00	0.00		
K	0.43						
C	0.017					85NT	
P	1.00						
T	3.00					3.00	
(F) (LS) (K) (C)	0.02388651	0.0000	0.0000	0.0000	0.0000	0.0239	
A = (R) (F) (LS) (K) (C) (P)	1.92	0.00	0.00	0.00	0.00	1.92	tons/acre/year
						2.30	tons/year

Transect Identification		Block 1, Transect 2 East, Post-project				
Acres		0.6	acres			
Total Slope Length		88	feet	Between diversions		
Number of Segments		1	segment			
	1	2	3	4	5	
R	80.25	80.25	80.25	80.25	80.25	
Factor (F)	1.00	0.00	0.00	0.00	0.00	
Slope Length	70					
Slope %	19.7					
LS	2.85	0.00	0.00	0.00	0.00	
K	0.43					
C	0.017					85NT
P	1.00					
T	3.00	3.00				3.00
(F) (LS) (K) (C)	0.0208462	0.0000	0.0000	0.0000	0.0000	0.0208
A = (R) (F) (LS) (K) (C) (P)	1.67	0.00	0.00	0.00	0.00	1.67 tons/acre/year
						1.00 tons/year

Transect Identification		Block 1, Transect 3 East, Post-project				
Acres		0.5	acres			
Total Slope Length		79	feet	Below lower diversion		
Number of Segments		1	segment			
	1	2	3	4	5	
R	80.25	80.25	80.25	80.25	80.25	
Factor (F)	1.00	0.00	0.00	0.00	0.00	
Slope Length	79					
Slope %	19.3					
LS	2.95	0.00	0.00	0.00	0.00	
K	0.43					
C	0.017					85NT
P	1.00					
T	3.00	3.00				3.00
(F) (LS) (K) (C)	0.0215496	0.0000	0.0000	0.0000	0.0000	0.0215
A = (R) (F) (LS) (K) (C) (P)	1.73	0.00	0.00	0.00	0.00	1.73 tons/acre/year
						0.86 tons/year

Transect Identification		Schramsberg Block 1A North , Pre-project				
Acres		0.2	acres			
Total Slope Length		98	feet			
Number of Segments		1	segment			
	1	2	3	4	5	
R	80.25	80.25	80.25	80.25	80.25	
Factor (F)	1.00	0.00	0.00	0.00	0.00	
Slope Length	98					
Slope %	10.2					
LS	1.38	0.00	0.00	0.00	0.00	
K	0.43					
C	0.038					
P	1.00	1.00	1.00	1.00		
T	3.00	3.00	1.00	1.00		3.00
(F) (LS) (K) (C)	0.022228	0.0000	0.0000	0.0000	0.0000	0.0222
A = (R) (F) (LS) (K) (C) (P)	1.78	0.00	0.00	0.00	0.00	1.78 tons/acre/year
						0.36 tons/year

Transect Identification		Schramsberg Block 1A North, Post-project				
Acres		0.2	acres			
Total Slope Length		98	feet			
Number of Segments		1	segment			
	1	2	3	4	5	
R	80.25	80.25	80.25	80.25	80.25	
Factor (F)	1.00	0.00	0.00	0.00	0.00	
Slope Length	98					
Slope %	10.2					
LS	1.38	0.00	0.00	0.00	0.00	
K	0.43					
C	0.034					75NT
P	1.00	1.00	1.00			
T	3.00	3.00	3.00			3.00
(F) (LS) (K) (C)	0.02015335	0.0000	0.0000	0.0000	0.0000	0.0202
A = (R) (F) (LS) (K) (C) (P)	1.62	0.00	0.00	0.00	0.00	1.62 tons/acre/year
						0.32 tons/year

Transect Identification		Schramsberg Block 1A South , Pre-project					
Acres		0.5					
Total Slope Length		163	feet				
Number of Segments		1	segment				
	1	2	3	4	5		
R	80.25	80.25	80.25	80.25	80.25		
Factor (F)	1.00	0.00	0.00	0.00	0.00		
Slope Length	163						
Slope %	6.7						
LS	0.99	0.00	0.00	0.00	0.00		
K	0.43						
C	0.038						
P	1.00	1.00	1.00	1.00			
T	3.00	3.00	1.00	1.00		3.00	
(F) (LS) (K) (C)	0.0159807	0.0000	0.0000	0.0000	0.0000	0.0160	
A = (R) (F) (LS) (K) (C) (P)	1.28	0.00	0.00	0.00	0.00	1.28	tons/acre/year
						0.64	tons/year

Transect Identification		Schramsberg Block 1A South, Post-project					
Acres		0.5	acres				
Total Slope Length		163	feet				
Number of Segments		1	segment				
	1	2	3	4	5		
R	80.25	80.25	80.25	80.25	80.25		
Factor (F)	1.00	0.00	0.00	0.00	0.00		
Slope Length	163						
Slope %	6.7						
LS	0.99	0.00	0.00	0.00	0.00		
K	0.43						
C	0.034					75NT	
P	1.00	1.00	1.00				
T	3.00	3.00	3.00			3.00	
(F) (LS) (K) (C)	0.01448915	0.0000	0.0000	0.0000	0.0000	0.0145	
A = (R) (F) (LS) (K) (C) (P)	1.16	0.00	0.00	0.00	0.00	1.16	tons/acre/year
						0.58	tons/year

Transect Identification		Schramsberg Block 2, Pre-project					
Acres		0.3	acres				
Total Slope Length		204	feet				
Number of Segments		1	segment				
	1	2	3	4	5		
R	80.25	80.25	80.25	80.25	80.25		
Factor (F)	1.00	0.00	0.00	0.00	0.00		
Slope Length	204						
Slope %	7.8						
LS	1.36	0.00	0.00	0.00	0.00		
K	0.43						
C	0.064						
P	1.00	1.00	1.00	1.00			
T	3.00	3.00	1.00	1.00		3.00	
(F) (LS) (K) (C)	0.0377816	0.0000	0.0000	0.0000	0.0000	0.0378	
A = (R) (F) (LS) (K) (C) (P)	3.03	0.00	0.00	0.00	0.00	3.03	tons/acre/year
						0.91	tons/year

Transect Identification		Schramsberg Block 2, Post-project					
Acres		0.3	acres				
Total Slope Length		204	feet				
Number of Segments		1	segment				
	1	2	3	4	5		
R	80.25	80.25	80.25	80.25	80.25		
Factor (F)	1.00	0.00	0.00	0.00	0.00		
Slope Length	204						
Slope %	7.8						
LS	1.36	0.00	0.00	0.00	0.00		
K	0.43						
C	0.034					75NT	
P	1.00	1.00	1.00				
T	3.00	3.00	3.00			3.00	
(F) (LS) (K) (C)	0.01994682	0.0000	0.0000	0.0000	0.0000	0.0199	
A = (R) (F) (LS) (K) (C) (P)	1.60	0.00	0.00	0.00	0.00	1.60	tons/acre/year
						0.48	tons/year

Transect Identification		Schramsberg Block 3, Pre-project				
Acres		0.4	acres			
Total Slope Length		128	feet			
Number of Segments		1	segment			
	1	2	3	4	5	
R	80.25	80.25	80.25	80.25	80.25	
Factor (F)	1.00	0.00	0.00	0.00	0.00	
Slope Length	128					
Slope %	17.2					
LS	3.22	0.00	0.00	0.00	0.00	
K	0.28					
C	0.082					
P	1.00	1.00	1.00	1.00		
T	2.00	3.00	1.00	1.00		2.00
(F) (LS) (K) (C)	0.0741124	0.0000	0.0000	0.0000	0.0000	0.0741
A = (R) (F) (LS) (K) (C) (P)	5.95	0.00	0.00	0.00	0.00	5.95 tons/acre/year
						2.38 tons/year

Transect Identification		Schramsberg Block 3, Post-project				
Acres		0.4	acres			
Total Slope Length		128	feet			
Number of Segments		1	segment			
	1	2	3	4	5	
R	80.25	80.25	80.25	80.25	80.25	
Factor (F)	1.00	0.00	0.00	0.00	0.00	
Slope Length	128					
Slope %	17.2					
LS	3.22	0.00	0.00	0.00	0.00	
K	0.28					
C	0.022					80NT
P	1.00	1.00	1.00			
T	2.00	3.00				2.00
(F) (LS) (K) (C)	0.01981134	0.0000	0.0000	0.0000	0.0000	0.0198
A = (R) (F) (LS) (K) (C) (P)	1.59	0.00	0.00	0.00	0.00	1.59 tons/acre/year
						0.64 tons/year

Transect Identification		Schramsberg Block 4 North, Pre-project				
Acres		0.2	acres			
Total Slope Length		150	feet			
Number of Segments		3	segments			
	1	2	3	4	5	
R	80.25	80.25	80.25	80.25	80.25	
Factor (F)	0.19	0.35	0.46	0.00	0.00	
Slope Length	150	150	150			
Slope %	20.0	16.0	22.0			
LS	4.26	3.16	4.83	0.00	0.00	
K	0.43	0.43	0.28			
C	0.036	0.036	0.064			
P	1.00	1.00	1.00	1.00		
T	3.00	3.00	3.00	3.00		3.00
(F) (LS) (K) (C)	0.0124574	0.0170	0.0401	0.0000	0.0000	0.0695
A = (R) (F) (LS) (K) (C) (P)	1.00	1.37	3.22	0.00	0.00	5.58 tons/acre/year
						1.12 tons/year

Transect Identification		Schramsberg Block 4 North Post-project				
Acres		0.2	acres			
Total Slope Length		150	feet			
Number of Segments		3	segments			
	1	2	3	4	5	
R	80.25	80.25	80.25	80.25	80.25	
Factor (F)	0.19	0.35	0.46	0.00	0.00	
Slope Length	150	150	150			
Slope %	20.0	16.0	22.0			
LS	4.26	3.16	4.83	0.00	0.00	
K	0.43	0.43	0.28			
C	0.022	0.022	0.022			80NT
P	1.00	1.00	1.00	1.00		
T	3.00	3.00	3.00	3.00		3.00
(F) (LS) (K) (C)	0.0076554	0.0105	0.0137	0.0000	0.0000	0.0318
A = (R) (F) (LS) (K) (C) (P)	0.61	0.84	1.10	0.00	0.00	2.55 tons/acre/year
						0.51 tons/year

Transect Identification		Schramsberg Block 4 South, Pre-project					
Acres		0.3	acres				
Total Slope Length		218	feet				
Number of Segments		2	segments				
	1	2	3	4	5		
R	80.25	80.25	80.25	80.25	80.25		
Factor (F)	0.35	0.65	0.00	0.00	0.00		
Slope Length	218	218					
Slope %	5.5	10.1					
LS	0.89	2.03	0.00	0.00	0.00		
K	0.43	0.43					
C	0.036	0.064					
P	1.00	1.00	1.00	1.00			
T	3.00	3.00	3.00	3.00		3.00	
(F) (LS) (K) (C)	0.0047831	0.0365	0.0000	0.0000	0.0000	0.0413	
A = (R) (F) (LS) (K) (C) (P)	0.38	2.93	0.00	0.00	0.00	3.31	tons/acre/year
						0.99	tons/year

Transect Identification		Schramsberg Block 4 South Post-project					
Acres		0.3	acres				
Total Slope Length		218	feet				
Number of Segments		2	segments				
	1	2	3	4	5		
R	80.25	80.25	80.25	80.25	80.25		
Factor (F)	0.35	0.65	0.00	0.00	0.00		
Slope Length	218	218					
Slope %	5.5	10.1					
LS	0.89	2.03	0.00	0.00	0.00		
K	0.43	0.43					
C	0.022	0.022				80NT	
P	1.00	1.00	1.00	1.00			
T	3.00	3.00	3.00	3.00		3.00	
(F) (LS) (K) (C)	0.00293931	0.0125	0.0000	0.0000	0.0000	0.0154	
A = (R) (F) (LS) (K) (C) (P)	0.24	1.00	0.00	0.00	0.00	1.24	tons/acre/year
						0.37	tons/year

Transect Identification		Schramsberg Block 5 South, Pre-project					
Acres		2.2	acres				
Total Slope Length		290	feet				
Number of Segments		2	segments				
	1	2	3	4	5		
R	80.25	80.25	80.25	80.25	80.25		
Factor (F)	0.35	0.65	0.00	0.00	0.00		
Slope Length	290	290					
Slope %	24.1	32.4					
LS	7.56	10.98	0.00	0.00	0.00		
K (As Perkins)	0.20	0.20					
C	0.080	0.080					
P	1.00	1.00	1.00	1.00			
T	5.00	5.00				5.00	
(F) (LS) (K) (C)	0.0420932	0.1135	0.0000	0.0000	0.0000	0.1556	
A = (R) (F) (LS) (K) (C) (P)	3.38	9.11	0.00	0.00	0.00	12.49	tons/acre/year
						27.48	tons/year

Transect Identification		Schramsberg Block 5 South Post-project					
Acres		2.2	acres				
Total Slope Length		290	feet				
Number of Segments		2	segments				
	1	2	3	4	5		
R	80.25	80.25	80.25	80.25	80.25		
Factor (F)	0.35	0.65	0.00	0.00	0.00		
Slope Length	290	290					
Slope %	24.1	32.4					
LS	7.56	10.98	0.00	0.00	0.00		
K (As Perkins)	0.20	0.20					
C	0.022	0.022				80NT	
P	1.00	1.00	1.00	1.00			
T	5.00	5.00				5.00	
(F) (LS) (K) (C)	0.01164843	0.0314	0.0000	0.0000	0.0000	0.0431	
A = (R) (F) (LS) (K) (C) (P)	0.93	2.52	0.00	0.00	0.00	3.46	tons/acre/year
						7.60	tons/year

Transect Identification		Schramsberg Block 5 North, Pre-project				
Acres		2.1	acres			
Total Slope Length		471	feet			
Number of Segments		3	segments			
	1	2	3	4	5	
R	80.25	80.25	80.25	80.25	80.25	
Factor (F)	0.19	0.35	0.46	0.00	0.00	
Slope Length	471	471	471			
Slope %	20.4	23.6	14.6			
LS	7.75	9.38	4.94	0.00	0.00	
K (As Boomer)	0.32	0.32	0.32			
C	0.080	0.080	0.080			
P	1.00	1.00	1.00	1.00		
T	4.00	4.00	4.00	3.00		4.00
(F) (LS) (K) (C)	0.0374505	0.0835	0.0582	0.0000	0.0000	0.1792
A = (R) (F) (LS) (K) (C) (P)	3.01	6.70	4.67	0.00	0.00	14.38 tons/acre/year
						30.20 tons/year

Transect Identification		Schramsberg Block 5 North Post-project				
Acres		2.1	acres			
Total Slope Length		471	feet			
Number of Segments		3	segments			
	1	2	3	4	5	
R	80.25	80.25	80.25	80.25	80.25	
Factor (F)	0.19	0.35	0.46	0.00	0.00	
Slope Length	471	471	471			
Slope %	20.4	23.6	14.6			
LS	7.75	9.38	4.94	0.00	0.00	
K (As Boomer)	0.32	0.32	0.32			
C	0.022	0.022	0.022			80NT
P	1.00	1.00	1.00	1.00		
T	4.00	4.00	4.00	3.00		4.00
(F) (LS) (K) (C)	0.01036367	0.0231	0.0160	0.0000	0.0000	0.0495
A = (R) (F) (LS) (K) (C) (P)	0.83	1.85	1.28	0.00	0.00	3.97 tons/acre/year
						8.34 tons/year

Transect Identification		Schramsberg Block 6, Pre-project				
Acres		2.3	acres			
Total Slope Length		368	feet			
Number of Segments		2	segments			
	1	2	3	4	5	
R	80.25	80.25	80.25	80.25	80.25	
Factor (F)	0.35	0.65	0.00	0.00	0.00	
Slope Length	368	368				
Slope %	22.8	16.3				
LS	7.93	5.07	0.00	0.00	0.00	
K (As Perkins, Boomer)	0.20	0.32				
C	0.038	0.038				
P	1.00	1.00	1.00	1.00		
T	5.00	4.00				4.35
(F) (LS) (K) (C)	0.0211429	0.0402	0.0000	0.0000	0.0000	0.0613
A = (R) (F) (LS) (K) (C) (P)	1.70	3.23	0.00	0.00	0.00	4.92 tons/acre/year
						11.32 tons/year

Transect Identification		Schramsberg Block 6, Post-project				
Acres		2.3	acres			
Total Slope Length		368	feet			
Number of Segments		2	segments			
	1	2	3	4	5	
R	80.25	80.25	80.25	80.25	80.25	
Factor (F)	0.35	0.65	0.00	0.00	0.00	
Slope Length	368	368				
Slope %	22.8	16.3				
LS	7.93	5.07	0.00	0.00	0.00	
K (As Perkins, Boomer)	0.20	0.32				
C	0.022	0.022				80NT
P	1.00	1.00	1.00	1.00		
T	5.00	4.00				4.35
(F) (LS) (K) (C)	0.01220848	0.0232	0.0000	0.0000	0.0000	0.0354
A = (R) (F) (LS) (K) (C) (P)	0.98	1.86	0.00	0.00	0.00	2.84 tons/acre/year
						6.54 tons/year

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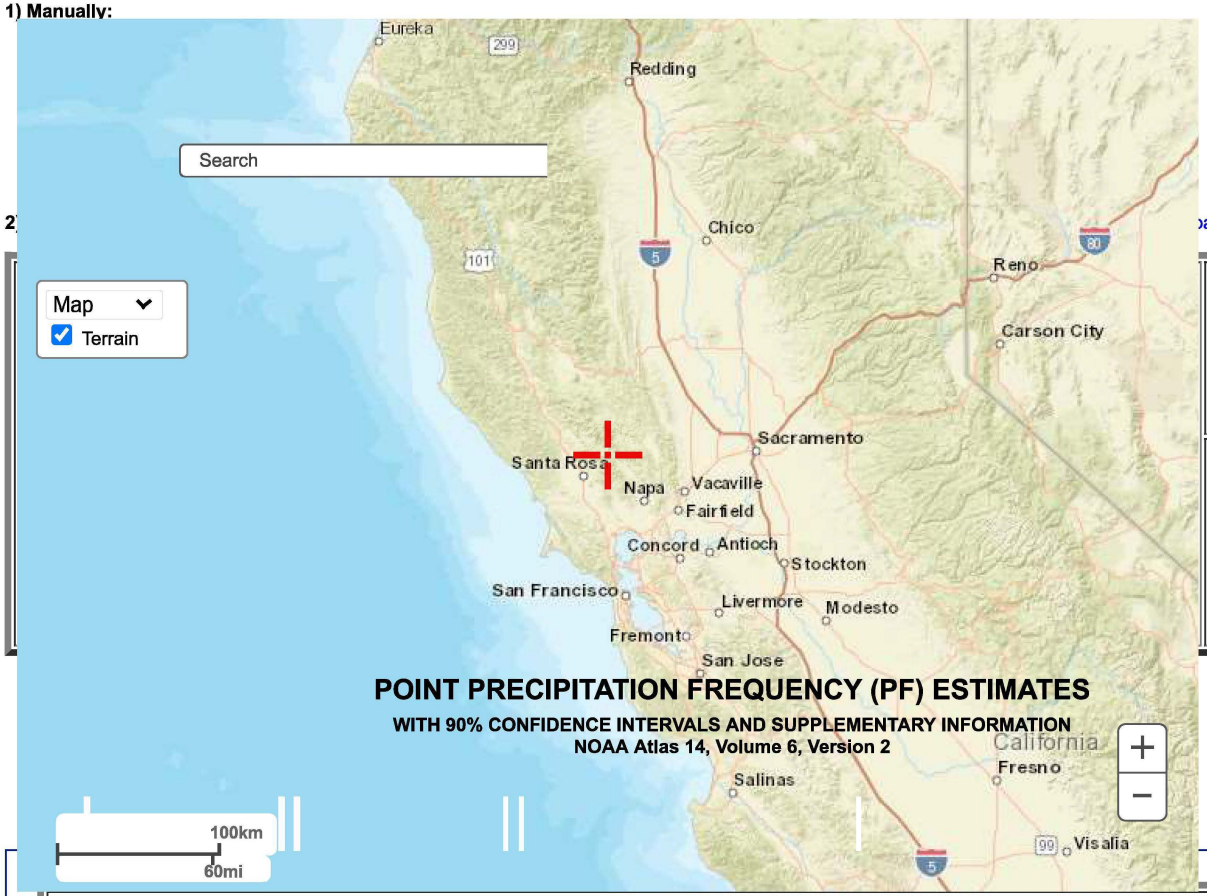
NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES: CA

Data description

Data type: Precipitation depth **Units:** English **Time series type:** Partial duration

Select location

1) Manually:



aa.gov):

a) Select location
Move crosshair or double click

b) Click on station icon
☐ Show stations on map

Location information:
Name: Calistoga, California, USA*
Latitude: 38.5530°
Longitude: -122.5390°
Elevation: 733.32 ft **
* Source: ESRI Maps
** Source: USGS

Print page

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.155** (0.138-0.176)	**0.187** (0.166-0.213)	**0.229** (0.203-0.261)	**0.264** (0.231-0.304)	**0.312** (0.264-0.374)	**0.351** (0.289-0.430)	**0.390** (0.313-0.492)	**0.432** (0.335-0.563)	**0.492** (0.364-0.671)	**0.540** (0.384-0.766)

10-min	**0.223** (0.198-0.253)	**0.268** (0.238-0.305)	**0.328** (0.291-0.375)	**0.378** (0.332-0.436)	**0.448** (0.378-0.536)	**0.502** (0.414-0.616)	**0.559** (0.448-0.705)	**0.620** (0.481-0.807)	**0.705** (0.522-0.962)	**0.774** (0.551-1.10)
15-min	**0.269** (0.239-0.306)	**0.324** (0.288-0.369)	**0.397** (0.352-0.453)	**0.457** (0.401-0.527)	**0.541** (0.457-0.648)	**0.608** (0.500-0.745)	**0.676** (0.542-0.853)	**0.750** (0.582-0.976)	**0.852** (0.631-1.16)	**0.935** (0.666-1.33)
30-min	**0.395** (0.352-0.449)	**0.476** (0.423-0.541)	**0.583** (0.516-0.665)	**0.672** (0.589-0.774)	**0.795** (0.671-0.952)	**0.892** (0.735-1.09)	**0.993** (0.796-1.25)	**1.10** (0.854-1.43)	**1.25** (0.926-1.71)	**1.37** (0.978-1.95)
60-min	**0.580** (0.516-0.659)	**0.698** (0.620-0.794)	**0.855** (0.757-0.976)	**0.986** (0.864-1.14)	**1.17** (0.984-1.40)	**1.31** (1.08-1.61)	**1.46** (1.17-1.84)	**1.62** (1.25-2.10)	**1.84** (1.36-2.51)	**2.02** (1.44-2.86)
2-hr	**0.878** (0.781-0.997)	**1.06** (0.940-1.20)	**1.29** (1.14-1.47)	**1.48** (1.30-1.70)	**1.73** (1.46-2.07)	**1.93** (1.59-2.36)	**2.12** (1.70-2.67)	**2.32** (1.80-3.02)	**2.59** (1.92-3.54)	**2.80** (1.99-3.97)
3-hr	**1.13** (1.00-1.28)	**1.36** (1.21-1.55)	**1.66** (1.47-1.89)	**1.90** (1.67-2.19)	**2.21** (1.87-2.65)	**2.45** (2.02-3.01)	**2.69** (2.15-3.39)	**2.93** (2.27-3.81)	**3.25** (2.40-4.43)	**3.49** (2.48-4.95)
6-hr	**1.71** (1.52-1.95)	**2.07** (1.84-2.36)	**2.53** (2.24-2.88)	**2.88** (2.53-3.32)	**3.35** (2.83-4.01)	**3.70** (3.05-4.54)	**4.04** (3.24-5.10)	**4.39** (3.40-5.71)	**4.83** (3.58-6.60)	**5.17** (3.68-7.34)
12-hr	**2.47** (2.20-2.81)	**3.03** (2.69-3.45)	**3.73** (3.30-4.26)	**4.29** (3.76-4.93)	**5.01** (4.23-6.00)	**5.54** (4.57-6.80)	**6.07** (4.86-7.66)	**6.60** (5.12-8.59)	**7.29** (5.40-9.95)	**7.81** (5.56-11.1)
24-hr	**3.50** (3.15-3.98)	**4.37** (3.92-4.96)	**5.46** (4.89-6.22)	**6.32** (5.62-7.25)	**7.45** (6.45-8.78)	**8.29** (7.06-9.94)	**9.12** (7.61-11.2)	**9.96** (8.11-12.5)	**11.1** (8.70-14.3)	**11.9** (9.08-15.9)
2-day	**4.55** (4.09-5.16)	**5.74** (5.16-6.53)	**7.26** (6.50-8.27)	**8.46** (7.52-9.70)	**10.0** (8.69-11.8)	**11.2** (9.54-13.4)	**12.4** (10.3-15.1)	**13.5** (11.0-17.0)	**15.1** (11.9-19.5)	**16.2** (12.4-21.7)
3-day	**5.25** (4.72-5.96)	**6.67** (5.99-7.58)	**8.48** (7.60-9.66)	**9.91** (8.82-11.4)	**11.8** (10.2-13.9)	**13.2** (11.2-15.8)	**14.6** (12.2-17.9)	**16.0** (13.1-20.1)	**17.9** (14.1-23.2)	**19.3** (14.8-25.8)
4-day	**5.84** (5.24-6.63)	**7.44** (6.68-8.46)	**9.48** (8.49-10.8)	**11.1** (9.87-12.7)	**13.2** (11.5-15.6)	**14.8** (12.6-17.8)	**16.4** (13.7-20.1)	**18.0** (14.7-22.5)	**20.1** (15.8-26.0)	**21.7** (16.6-28.9)
7-day	**7.21** (6.48-8.19)	**9.18** (8.24-10.4)	**11.7** (10.5-13.3)	**13.6** (12.1-15.6)	**16.2** (14.1-19.1)	**18.2** (15.5-21.8)	**20.1** (16.8-24.6)	**22.0** (17.9-27.6)	**24.5** (19.3-31.8)	**26.5** (20.2-35.3)
10-day	**8.22** (7.39-9.33)	**10.5** (9.39-11.9)	**13.3** (11.9-15.1)	**15.5** (13.8-17.8)	**18.4** (15.9-21.6)	**20.5** (17.5-24.6)	**22.6** (18.9-27.7)	**24.7** (20.1-30.9)	**27.5** (21.6-35.6)	**29.5** (22.6-39.4)
20-day	**10.8** (9.74-12.3)	**13.8** (12.4-15.7)	**17.5** (15.7-19.9)	**20.3** (18.1-23.3)	**23.9** (20.7-28.2)	**26.5** (22.6-31.8)	**29.0** (24.2-35.5)	**31.5** (25.6-39.4)	**34.6** (27.2-44.9)	**36.9** (28.2-49.3)
30-day	**13.0** (11.7-14.8)	**16.6** (14.9-18.9)	**20.9** (18.8-23.8)	**24.2** (21.6-27.8)	**28.4** (24.6-33.4)	**31.3** (26.6-37.5)	**34.1** (28.4-41.7)	**36.8** (30.0-46.1)	**40.2** (31.6-52.1)	**42.7** (32.6-56.9)
45-day	**15.9** (14.3-18.1)	**20.2** (18.1-23.0)	**25.3** (22.7-28.8)	**29.1** (25.9-33.4)	**33.8** (29.3-39.9)	**37.1** (31.6-44.5)	**40.2** (33.6-49.2)	**43.2** (35.2-54.1)	**46.9** (36.9-60.8)	**49.5** (37.8-66.1)
60-day	**18.8** (16.9-21.4)	**23.7** (21.3-27.0)	**29.5** (26.5-33.6)	**33.8** (30.1-38.8)	**39.1** (33.8-46.0)	**42.7** (36.3-51.2)	**46.1** (38.4-56.4)	**49.3** (40.2-61.7)	**53.2** (41.9-69.0)	**55.9** (42.8-74.7)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Estimates from the table in CSV format: Precipitation frequency estimates Submit

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- Soil Chemical Properties
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  - K Factor, Whole Soil

View Description | View Rating

View Options

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Description of Rating ☑

Rating Options ☑

☐ Detailed Description

Advanced Options

Aggregation Method: Dominant Condition

Component Percent Cutoff:

Tie-break Rule: ○ Lower ◉ Higher

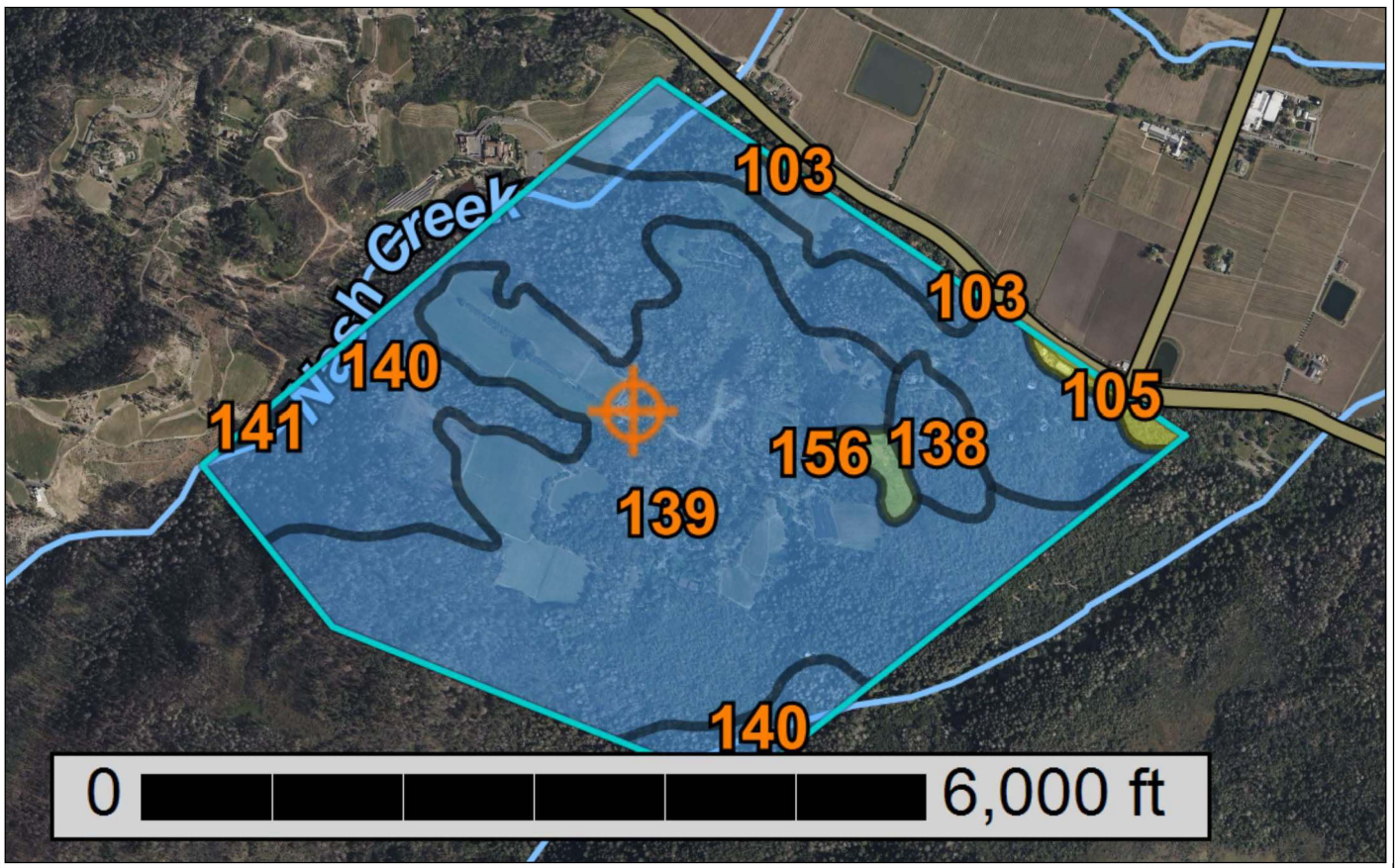
Layer Options (Horizon Aggregation Method):
- ○ Surface Layer (Not applicable)
- ◉ Depth Range (Weighted Average)
  - Top Depth: 0
  - Bottom Depth: 24
  - ◉ Inches ○ Centimeters
- ○ All Layers (Weighted Average)

View Description | View Rating

  - T Factor
  - Wind Erodibility Group
  - Wind Erodibility Index
- Soil Health Properties
- Soil Physical Properties
- Soil Qualities and Features
- Water Features

Map — K Factor, Whole Soil

Scale 1:41,600 ±1%



Tables — K Factor, Whole Soil — Summary By Map Unit

Summary by Map Unit — Napa County, California (CA055)

Summary by Map Unit — Napa County, California (CA055)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
103	Bale loam, 0 to 2 percent slopes	.24	0.6	0.1%
105	Bale clay loam, 2 to 5 percent slopes	.20	5.5	1.1%
Totals for Area of Interest			**498.9**	**100.0%**

Summary by Map Unit — Napa County, California (CA055)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
138	Forward silt loam, 3 to 26 percent slopes, MLRA 15	.43	14.0	2.8%
139	Forward silt loam, 5 to 39 percent slopes, MLRA 15	.43	304.0	60.9%
140	Forward silt loam, 12 to 57 percent slopes, MLRA 15	.43	167.5	33.6%
141	Forward-Kidd complex, 11 to 60 percent slopes, MLRA 15	.43	1.0	0.2%
156	Kidd loam, 30 to 75 percent slopes	.28	6.3	1.3%
Totals for Area of Interest			**498.9**	**100.0%**

Description — K Factor, Whole Soil

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Factor K does not apply to organic horizons and is not reported for those layers.

Rating Options — K Factor, Whole Soil

Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 0

Bottom Depth: 24

Units of Measure: Inches

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Properties and Qualities Ratings

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- Soil Chemical Properties
- **Soil Erosion Factors**
  - K Factor, Rock Free
  - K Factor, Whole Soil
  - T Factor

View Description | View Rating

View Options

Map ☑

Table ☑

Description of Rating ☑

Rating Options ☑

☐ Detailed Description

Advanced Options

Aggregation Method: Dominant Condition

Component Percent Cutoff:

Tie-break Rule: ◉ Lower ○ Higher

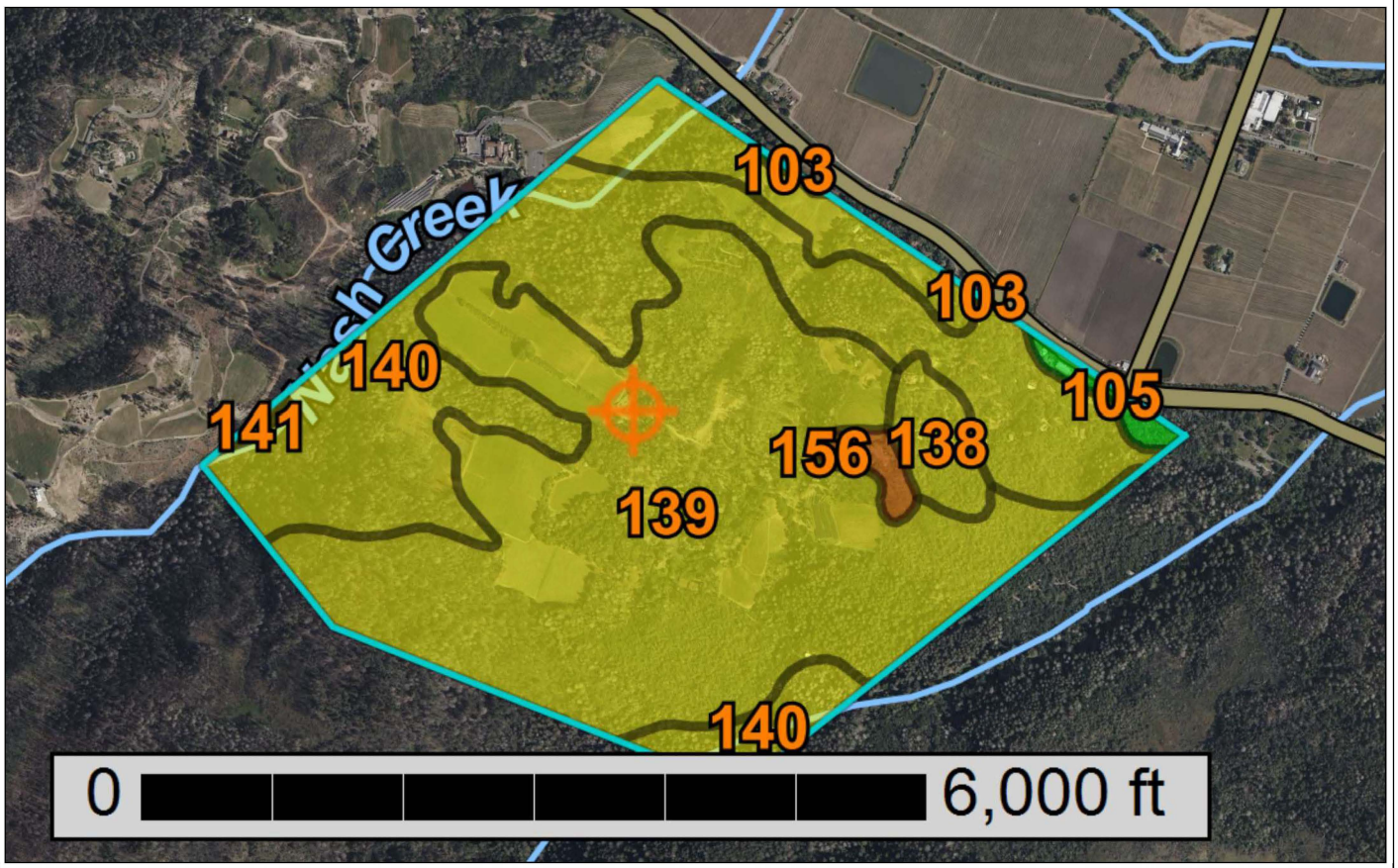
Interpret Nulls as Zero: ○ Yes ◉ No

View Description | View Rating

  - Wind Erodibility Group
  - Wind Erodibility Index
- Soil Health Properties
- Soil Physical Properties
- Soil Qualities and Features
- Water Features

Map — T Factor

Scale 1:41,600 ±1%



Tables — T Factor — Summary By Map Unit

Summary by Map Unit — Napa County, California (CA055)

Summary by Map Unit — Napa County, California (CA055)

Map unit symbol	Map unit name	Rating (tons per acre per year)	Acres in AOI	Percent of AOI
103	Bale loam, 0 to 2 percent slopes	5	0.6	0.1%
105	Bale clay loam, 2 to 5 percent slopes	5	5.5	1.1%
Totals for Area of Interest			**498.9**	**100.0%**

Summary by Map Unit — Napa County, California (CA055)				
Map unit symbol	**Map unit name**	**Rating (tons per acre per year)**	**Acres in AOI**	**Percent of AOI**
138	Forward silt loam, 3 to 26 percent slopes, MLRA 15	3	14.0	2.8%
139	Forward silt loam, 5 to 39 percent slopes, MLRA 15	3	304.0	60.9%
140	Forward silt loam, 12 to 57 percent slopes, MLRA 15	3	167.5	33.6%
141	Forward-Kidd complex, 11 to 60 percent slopes, MLRA 15	3	1.0	0.2%
156	Kidd loam, 30 to 75 percent slopes	2	6.3	1.3%
Totals for Area of Interest			**498.9**	**100.0%**

Description — T Factor

The T factor is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Rating Options — T Factor

Units of Measure: tons per acre per year

Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Tie-break Rule: Lower

Interpret Nulls as Zero: No

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USDA United States Department of Agriculture
Natural Resources Conservation Service

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Soil Chemical Properties

Soil Erosion Factors

K Factor, Rock Free

K Factor, Whole Soil

View Description | View Rating

View Options

Map ☑

Table ☑

Description of Rating ☑

Rating Options ☑

☐ Detailed Description

Advanced Options

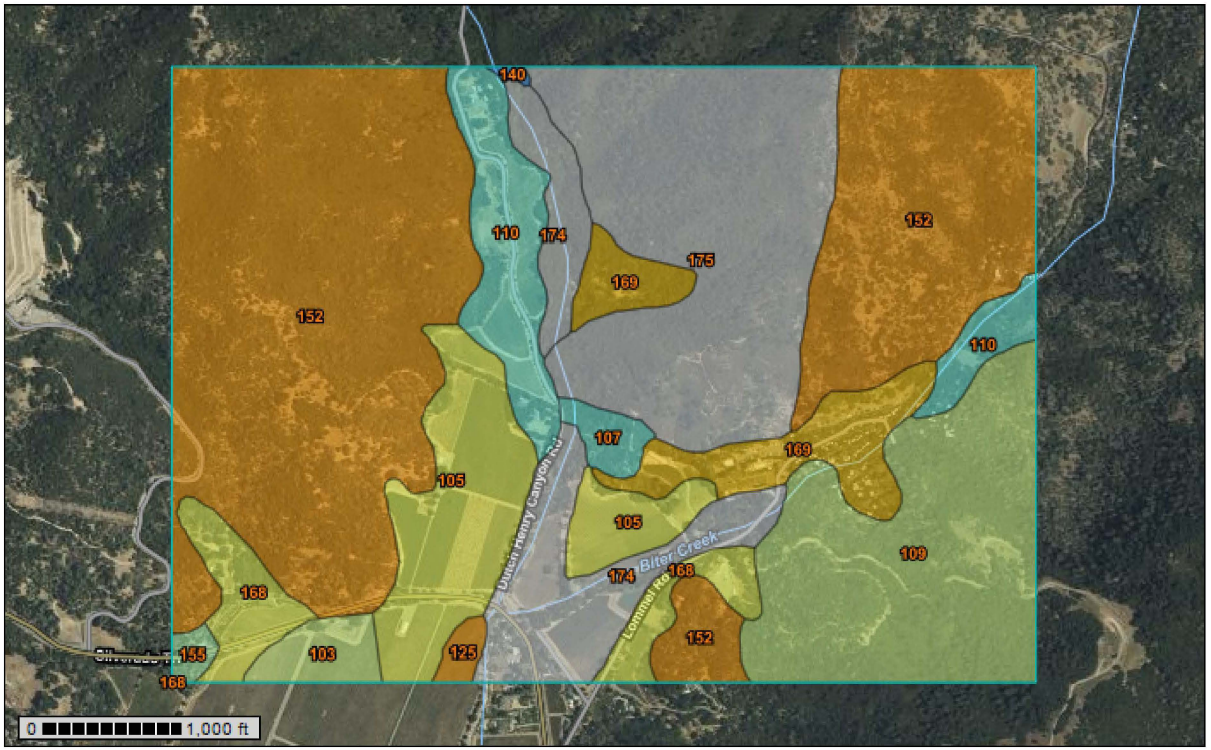
Aggregation Method: Dominant Condition

Component Percent Cutoff:

Tie-break Rule: ○ Lower ◉ Higher

Map — K Factor, Whole Soil

Scale (not to scale)



Warning: Soil Ratings Map may not be valid at this scale.

Tables — K Factor, Whole Soil — Summary By Map Unit

Summary by Map Unit — Napa County, California (CA055)

Summary by Map Unit — Napa County, California (CA055)

View Options

Layer Options (Horizon Aggregation Method)

- ○ Surface Layer (Not applicable)
- ◉ Depth Range (Weighted Average)
  - Top Depth: 0
  - Bottom Depth: 24
  - ◉ Inches
  - ○ Centimeters
- ○ All Layers (Weighted Average)

View Description | View Rating

- T Factor
- Wind Erodibility Group
- Wind Erodibility Index
- Soil Health Properties
- Soil Physical Properties
- Soil Qualities and Features
- Water Features

Summary by Map Unit — Napa County, California (CA055)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
103	Bale loam, 0 to 2 percent slopes	.24	8.2	1.3%
105	Bale clay loam, 2 to 5 percent slopes	.20	49.3	7.8%
107	Boomer loam, volcanic bedrock, 2 to 35 percent slopes, MLRA 15	.32	5.2	0.8%
109	Boomer gravelly loam, volcanic bedrock, 14 to 60 percent slopes, MLRA 15	.24	80.9	12.9%
110	Boomer-Forward-Felta complex, 30 to 50 percent slopes	.32	34.4	5.5%
125	Cortina very stony loam, 0 to 5 percent slopes	.10	2.7	0.4%
140	Forward silt loam, 12 to 57 percent slopes, MLRA 15	.43	0.6	0.1%
152	Hambright rock-Outcrop complex, 30 to 75 percent slopes	.10	246.8	39.3%
155	Kidd loam, 15 to 30 percent slopes	.28	2.4	0.4%
168	Perkins gravelly loam, 1 to 10 percent slopes, MLRA 14	.20	21.9	3.5%
169	Perkins gravelly loam, 5 to 9 percent slopes	.15	29.9	4.8%
174	Riverwash		45.5	7.2%
175	Rock outcrop		100.5	16.0%
Totals for Area of Interest			**628.3**	**100.0%**

Description — K Factor, Whole Soil

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Factor K does not apply to organic horizons and is not reported for those layers.

Rating Options — K Factor, Whole Soil
Aggregation Method: Dominant Condition
Component Percent Cutoff: *None Specified*
Tie-break Rule: Higher
Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)
Top Depth: 0
Bottom Depth: 24
Units of Measure: Inches

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Natural Resources Conservation Service

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Soil Chemical Properties

Soil Erosion Factors

K Factor, Rock Free

K Factor, Whole Soil

T Factor

View Description | View Rating

View Options

Map ☑

Table ☑

Description of Rating ☑

Rating Options ☑

☐ Detailed Description

Advanced Options

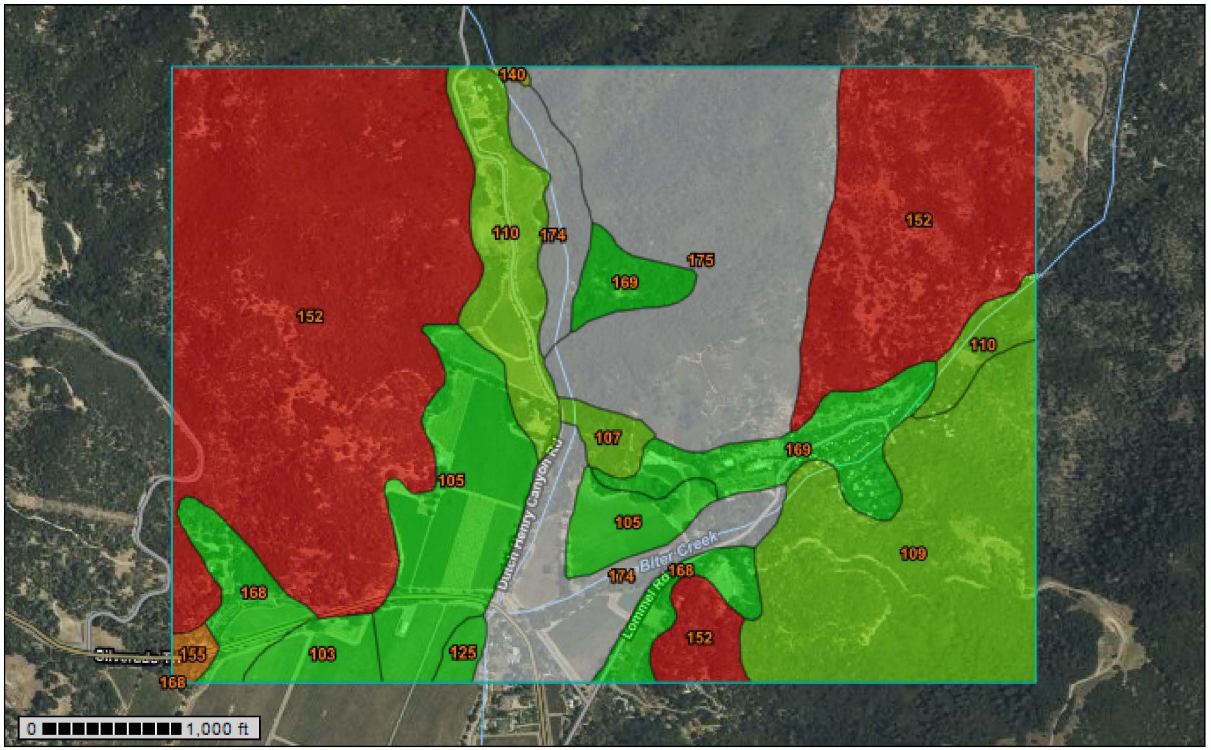
Aggregation Method: Dominant Condition

Component Percent Cutoff:

Tie-break Rule: ◉ Lower ○ Higher

Map — T Factor

Scale (not to scale)



Warning: Soil Ratings Map may not be valid at this scale.

Tables — T Factor — Summary By Map Unit

Summary by Map Unit — Napa County, California (CA055)

Summary by Map Unit — Napa County, California (CA055)

View Options

Interpret Nulls as Zero: Yes / No

View Description | View Rating

- Wind Erodibility Group
- Wind Erodibility Index
- Soil Health Properties
- Soil Physical Properties
- Soil Qualities and Features
- Water Features

Summary by Map Unit — Napa County, California (CA055)

Map unit symbol	Map unit name	Rating (tons per acre per year)	Acres in AOI	Percent of AOI
103	Bale loam, 0 to 2 percent slopes	5	8.2	1.3%
105	Bale clay loam, 2 to 5 percent slopes	5	49.3	7.8%
107	Boomer loam, volcanic bedrock, 2 to 35 percent slopes, MLRA 15	4	5.2	0.8%
109	Boomer gravelly loam, volcanic bedrock, 14 to 60 percent slopes, MLRA 15	4	80.9	12.9%
110	Boomer-Forward-Felta complex, 30 to 50 percent slopes	4	34.4	5.5%
125	Cortina very stony loam, 0 to 5 percent slopes	5	2.7	0.4%
140	Forward silt loam, 12 to 57 percent slopes, MLRA 15	3	0.6	0.1%
152	Hambright rock-Outcrop complex, 30 to 75 percent slopes	1	246.8	39.3%
155	Kidd loam, 15 to 30 percent slopes	2	2.4	0.4%
168	Perkins gravelly loam, 1 to 10 percent slopes, MLRA 14	5	21.9	3.5%
169	Perkins gravelly loam, 5 to 9 percent slopes	5	29.9	4.8%
174	Riverwash		45.5	7.2%
175	Rock outcrop		100.5	16.0%
Totals for Area of Interest			**628.3**	**100.0%**

Description — T Factor

The T factor is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Rating Options — T Factor

Units of Measure: tons per acre per year

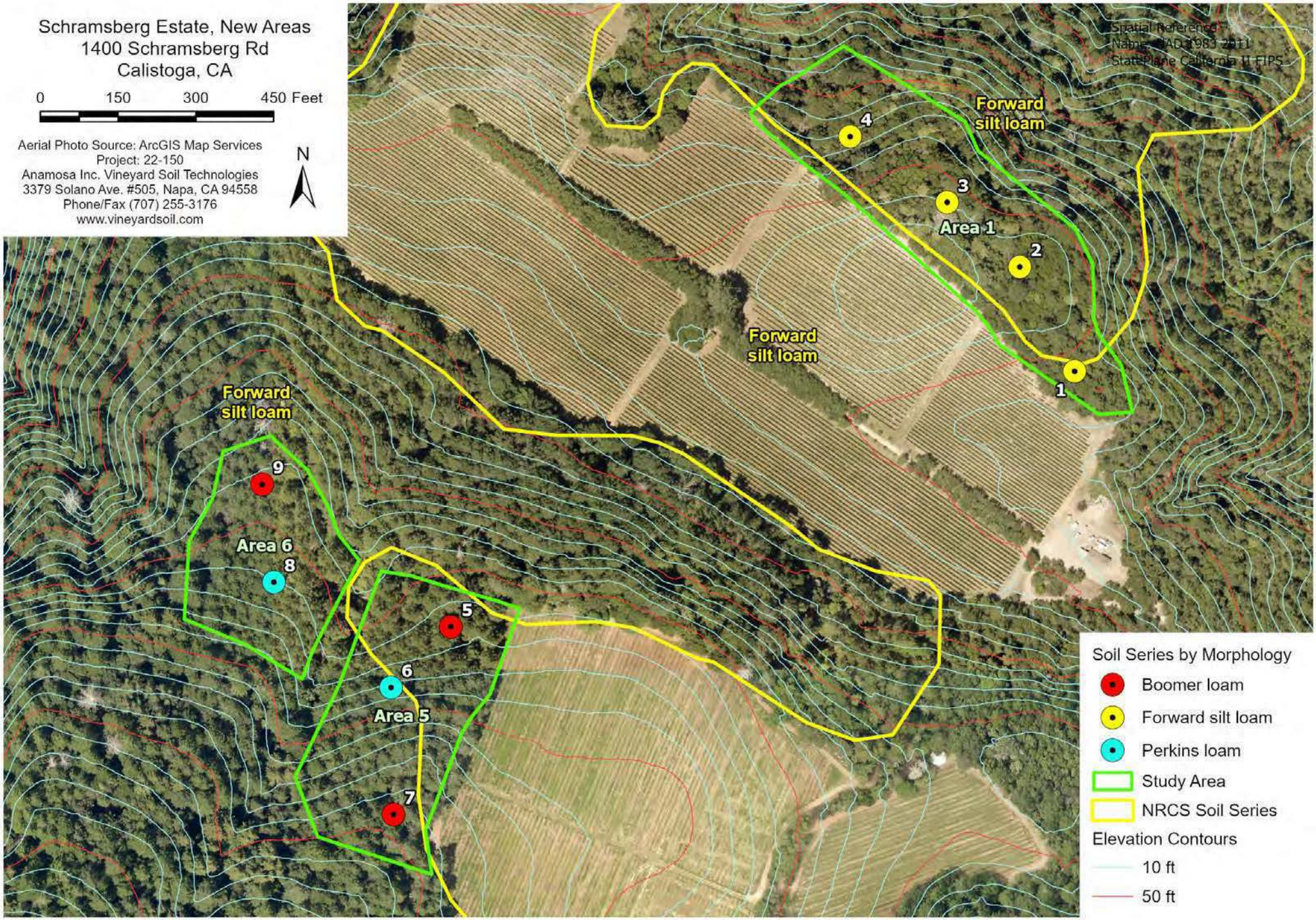
Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Tie-break Rule: Lower

Interpret Nulls as Zero: No

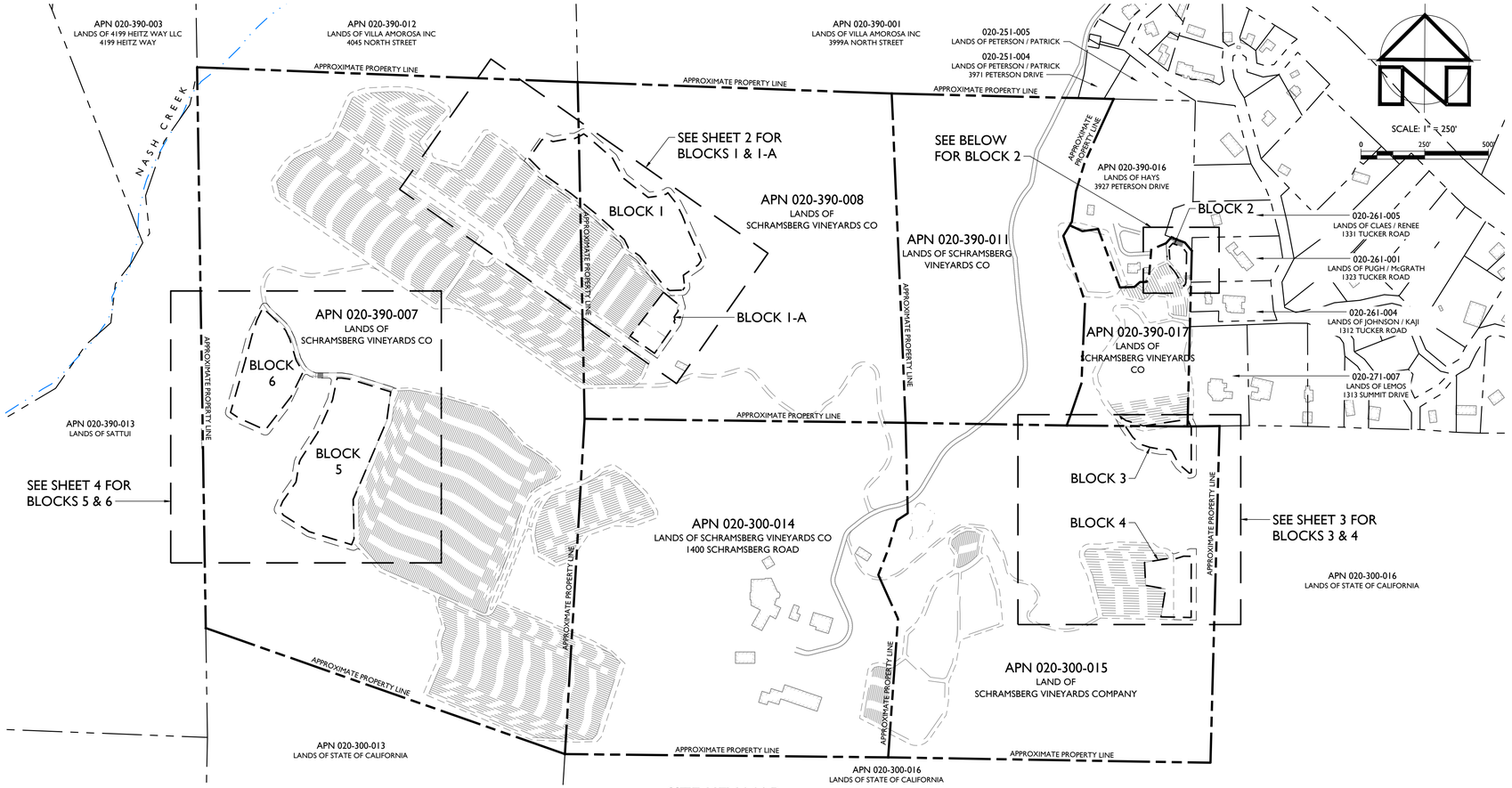
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Schramsberg Estate, New Areas
1400 Schramsberg Rd
Calistoga, CA
0
150
300
450 Feet
Aerial Photo Source: ArcGIS Map Services
Project: 22-150
Anamosa Inc. Vineyard Soil Technologies
3379 Solano Ave. #505, Napa, CA 94558
Phone/Fax (707) 255-3176
www.vineyardsoil.com
N
Spatial Reference
Name: NAD 1983 2011
StatePlane California II FIPS
Forward
silt loam
Forward
silt loam
Forward
silt loam
Area 1
Area 6
Area 5
1
2
3
4
5
6
7
8
9
Soil Series by Morphology
Boomer loam
Forward silt loam
Perkins loam
Study Area
NRCS Soil Series
Elevation Contours
10 ft
50 ft

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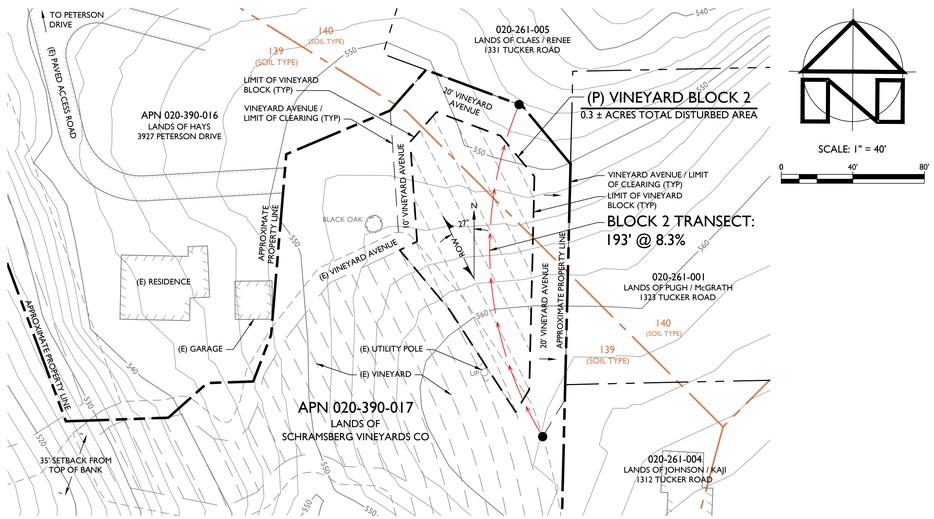
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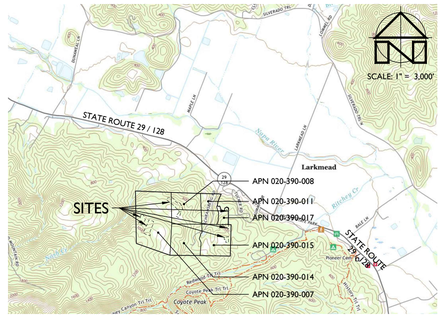
SITE KEY MAP

SCALE: 1" = 50'



VINEYARD BLOCK 2

SCALE: 1" = 40'



LOCATION MAP

SCALE: 1" = 3,000'

PROJECT INFORMATION:

PROPERTY OWNER & APPLICANT:
SCHRAMSBERG VINEYARDS COMPANY
1400 SCHRAMSBERG ROAD
CALISTOGA, CA 94515

SITE ADDRESS:
NO SITUS
CALISTOGA, CA 94515

SHEET INDEX:

1	SITE KEY MAP AND VINEYARD BLOCK 2
2	VINEYARD BLOCKS 1 & 1A
3	VINEYARD BLOCKS 3 & 4
4	VINEYARD BLOCKS 5 & 6

NOTES:

1. FADED BACKGROUND REPRESENTS EXISTING TOPOGRAPHIC FEATURES. TOPOGRAPHIC INFORMATION WAS TAKEN FROM THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM DATABASE. APPLIED CIVIL ENGINEERING INCORPORATED ASSUMES NO LIABILITY REGARDING THE ACCURACY OR COMPLETENESS OF THE TOPOGRAPHIC INFORMATION.
2. AERIAL PHOTOGRAPHS WERE OBTAINED FROM THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM (GIS) DATABASE, TAKEN APRIL TO JUNE 2018 AND MAY NOT REPRESENT CURRENT CONDITIONS.
3. CONTOUR INTERVAL: TWO (2) FEET, HIGHLIGHTED EVERY TEN (10) FEET
4. VERTICAL DATUM: NAVD 88
5. THE PROPERTY LINES SHOWN ON THESE PLANS DO NOT REPRESENT A BOUNDARY SURVEY. THEY ARE APPROXIMATE AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

LEGEND:

- APPROXIMATE PROPERTY LINE (SUBJECT PARCEL)
- APPROXIMATE PROPERTY LINE (ADJACENT PARCEL)
- SOIL TYPE BOUNDARY
- BLUE LINE STREAM
- EXISTING VINEYARD BLOCK
- EXISTING VINEYARD AVENUE
- PROPOSED VINEYARD AVENUE / LIMIT OF GRADING
- PROPOSED VINEYARD BLOCK / LIMIT OF RIPPING
- ROW — PROPOSED VINE ROWS & ROW DIRECTION
- TRANSECT SEGMENTS

SOIL TYPE LEGEND:

138	FORWARD GRAVELLY LOAM, 2 TO 9 PERCENT SLOPES
139	FORWARD GRAVELLY LOAM, 9 TO 30 PERCENT SLOPES
140	FORWARD GRAVELLY LOAM, 30 TO 75 PERCENT SLOPES
156	KIDD LOAM, 30 TO 75 PERCENT SLOPES

SOIL TYPE BOUNDARIES SHOWN ON THIS MAP ARE BASED ON THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM DATA AND SHOULD BE CONSIDERED APPROXIMATE.

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Napa, CA 94559
(707) 320-4988 | www.appliedcivil.com

SCHRAMSBERG VINEYARDS CO

UNIVERSAL SOIL LOSS EQUATION EXHIBIT
SITE KEY MAP AND VINEYARD BLOCK 2

PREPARED UNDER THE DIRECTION OF:

REGISTERED PROFESSIONAL ENGINEER
MICHAEL R. MUELRATH
MRM
NO. 67435
Exp. 12/31/2024
10/27/2023
CIVIL
STATE OF CALIFORNIA

DRAWN BY: PowerCAD LLC

CHECKED BY: MRM

DATE: OCTOBER 27, 2022

REVISIONS:	BY:
10/27/2023 PERMIT SUBMITTAL	YMS

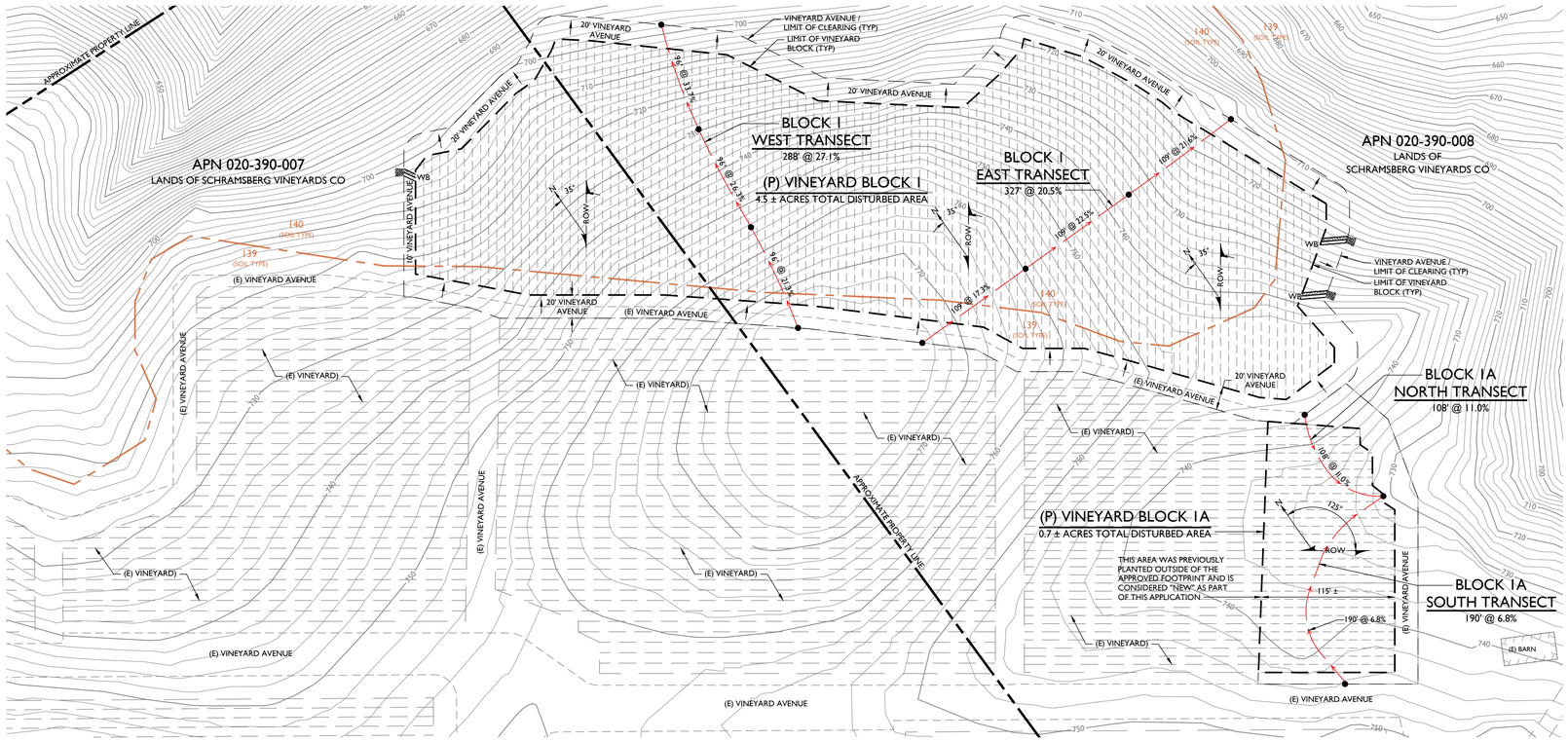
JOB NUMBER: 16-152

FILE: 16-152EXH-USLE.DWG

ORIGINAL SIZE: 24" X 36"

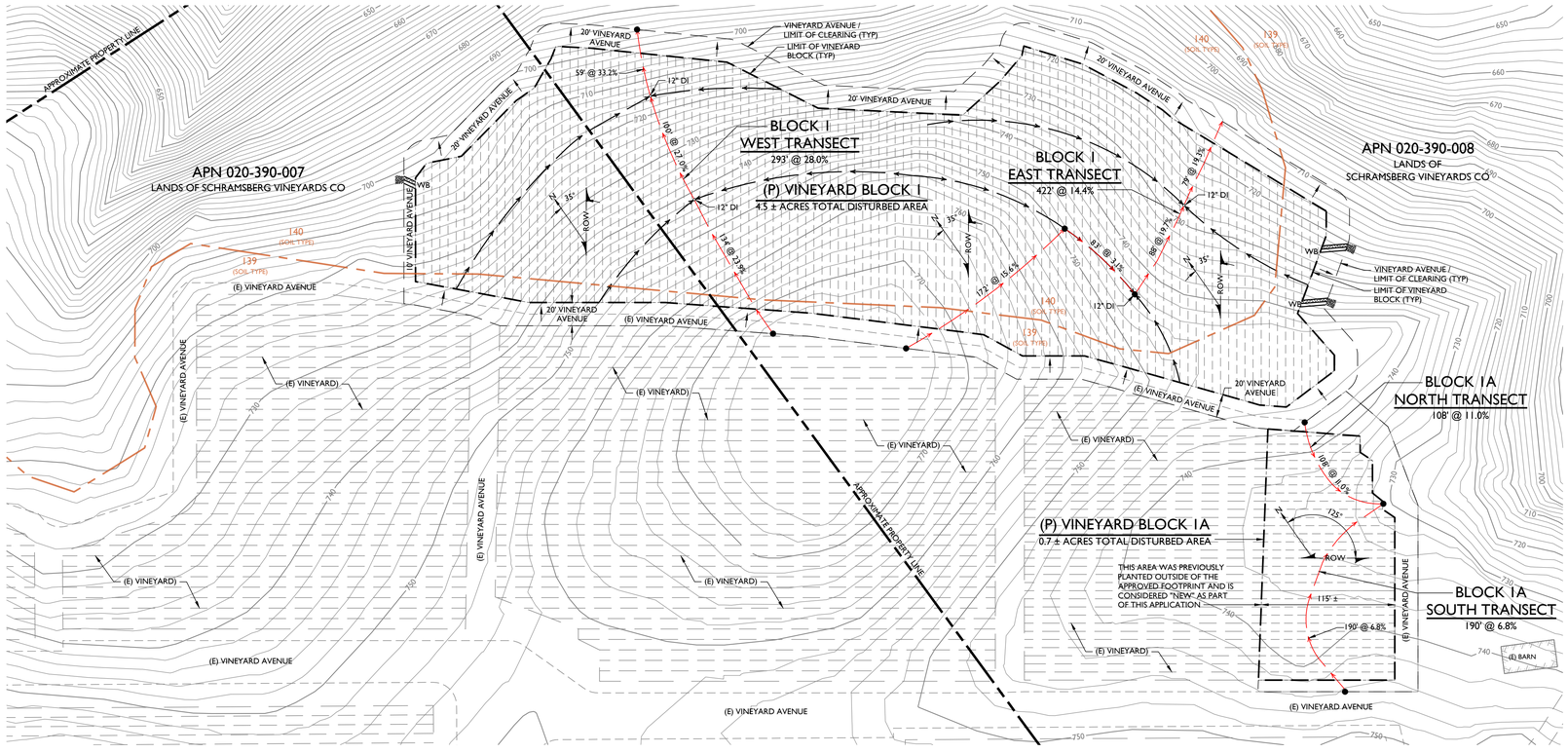
SHEET NUMBER: 1 OF 4

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VINEYARD BLOCKS 1 AND 1A - PRE-PROJECT

SCALE: 1" = 60'



VINEYARD BLOCKS 1 AND 1A - POST PROJECT

SCALE: 1" = 60'

LEGEND:

- APPROXIMATE PROPERTY LINE (SUBJECT PARCEL)
- APPROXIMATE PROPERTY LINE (ADJACENT PARCEL)
- SOIL TYPE BOUNDARY
- EXISTING VINEYARD BLOCK
- EXISTING VINEYARD AVENUE
- PROPOSED VINEYARD AVENUE / LIMIT OF GRADING
- PROPOSED VINEYARD BLOCK / LIMIT OF RIPPING
- PROPOSED VINE ROWS & ROW DIRECTION
- TRANSECT SEGMENTS

SOIL TYPE LEGEND:

138	FORWARD GRAVELLY LOAM, 2 TO 9 PERCENT SLOPES
139	FORWARD GRAVELLY LOAM, 9 TO 30 PERCENT SLOPES
140	FORWARD GRAVELLY LOAM, 30 TO 75 PERCENT SLOPES
156	KIDD LOAM, 30 TO 75 PERCENT SLOPES

SOIL TYPE BOUNDARIES SHOWN ON THIS MAP ARE BASED ON THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM DATA AND SHOULD BE CONSIDERED APPROXIMATE.

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UNIVERSAL SOIL LOSS EQUATION EXHIBIT
VINEYARD BLOCKS 1 & 1A

PREPARED UNDER THE DIRECTION OF:

REGISTERED PROFESSIONAL ENGINEER
MICHAEL R. MUELRATH
MRM
NO. 67435
Exp. 12/31/2024
10/27/2023
CIVIL
STATE OF CALIFORNIA

DRAWN BY: PowerCAD LLC

CHECKED BY: MRM

DATE: OCTOBER 27, 2022

REVISIONS:	BY:
10/27/2023 PERMIT SUBMITTAL	YMS

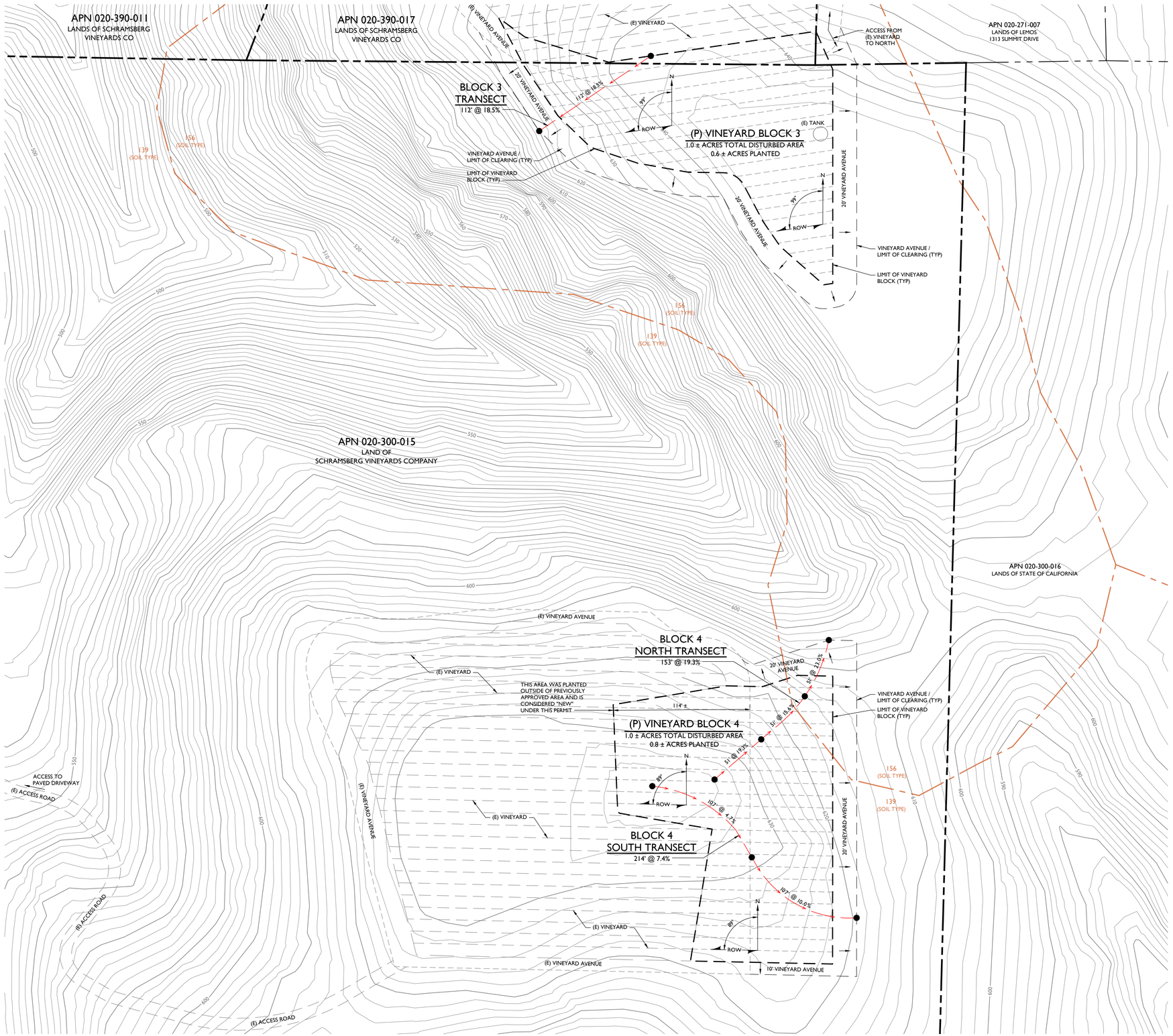
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ORIGINAL SIZE: 24" X 36"

SHEET NUMBER: 2 OF 4

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VINEYARD BLOCKS 3 & 4

SCALE: 1" = 40'

LEGEND:

- APPROXIMATE PROPERTY LINE (SUBJECT PARCEL)
- APPROXIMATE PROPERTY LINE (ADJACENT PARCEL)
- SOIL TYPE BOUNDARY
- EXISTING VINEYARD BLOCK
- EXISTING VINEYARD AVENUE
- PROPOSED VINEYARD AVENUE / LIMIT OF GRADING
- PROPOSED VINEYARD BLOCK / LIMIT OF RIPPING
- PROPOSED VINE ROWS & ROW DIRECTION
- TRANSECT SEGMENTS

SOIL TYPE LEGEND:

138	FORWARD GRAVELLY LOAM, 2 TO 9 PERCENT SLOPES
139	FORWARD GRAVELLY LOAM, 9 TO 30 PERCENT SLOPES
140	FORWARD GRAVELLY LOAM, 30 TO 75 PERCENT SLOPES
156	KIDD LOAM, 30 TO 75 PERCENT SLOPES

SOIL TYPE BOUNDARIES SHOWN ON THIS MAP ARE BASED ON THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM DATA AND SHOULD BE CONSIDERED APPROXIMATE.

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SCHRAMSBERG VINEYARDS CO

UNIVERSAL SOIL LOSS EQUATION EXHIBIT
VINEYARD BLOCKS 3 & 4

PREPARED UNDER THE DIRECTION OF:

REGISTERED PROFESSIONAL ENGINEER
MICHAEL R. MUELRATH
MRM
NO. 67435
Exp. 12/31/2024
10/27/2023
CIVIL
STATE OF CALIFORNIA

DRAWN BY: PowerCAD LLC

CHECKED BY: MRM

DATE: OCTOBER 27, 2022

REVISIONS:	BY:
10/27/2023 PERMIT SUBMITTAL	YMS

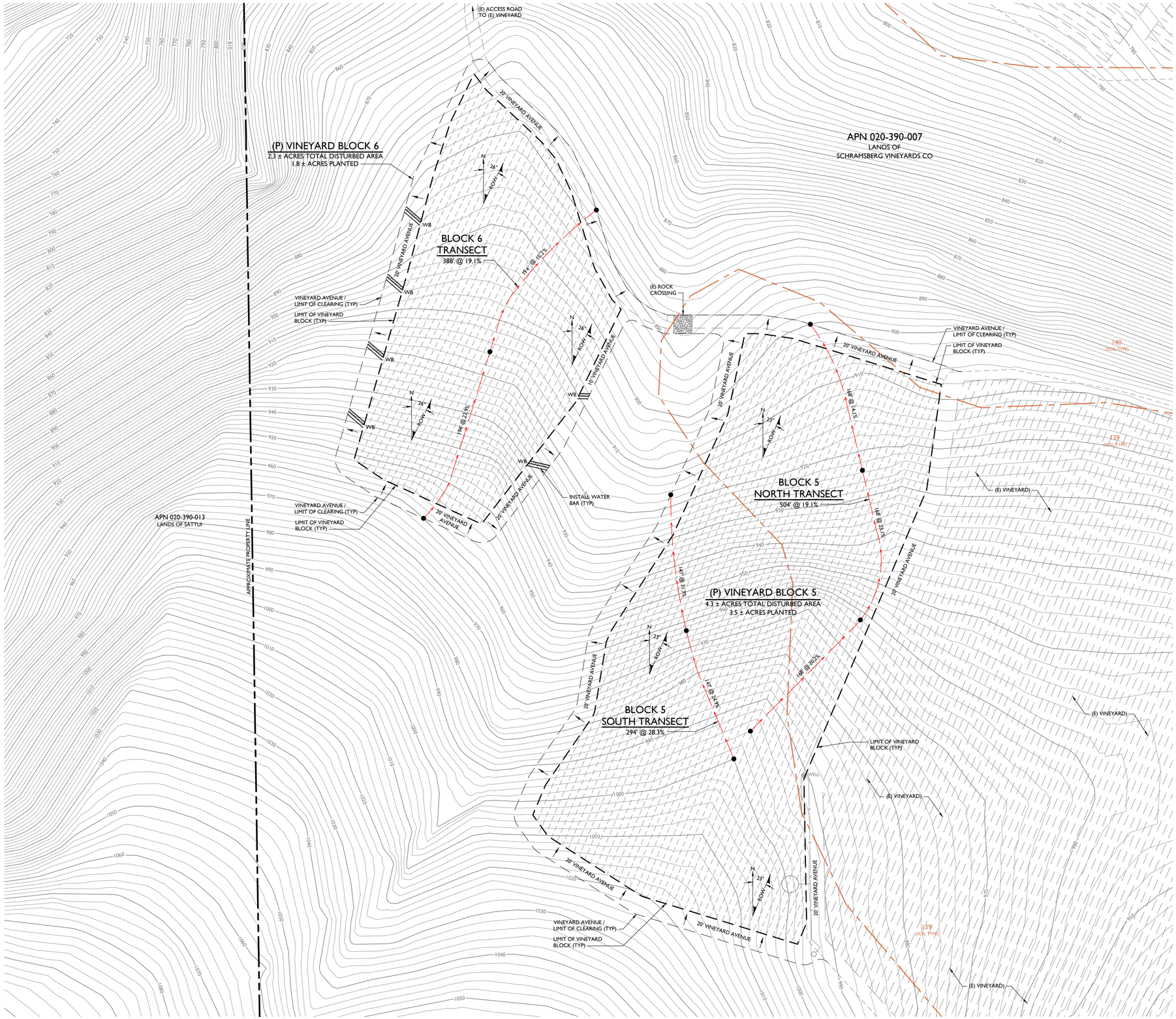
JOB NUMBER: 16-152

FILE: 16-152EXH-USLE.DWG

ORIGINAL SIZE: 24" X 36"

SHEET NUMBER: 3 OF 4

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VINEYARD BLOCKS 5 & 6

SCALE: 1" = 50'

SCALE: 1" = 50'

0 50' 100'

LEGEND:

- APPROXIMATE PROPERTY LINE (SUBJECT PARCEL)
- APPROXIMATE PROPERTY LINE (ADJACENT PARCEL)
- SOIL TYPE BOUNDARY
- EXISTING VINEYARD BLOCK
- EXISTING VINEYARD AVENUE
- PROPOSED VINEYARD AVENUE / LIMIT OF GRADING
- PROPOSED VINEYARD BLOCK / LIMIT OF RIPPING
- PROPOSED VINE ROWS & ROW DIRECTION
- TRANSECT SEGMENTS

SOIL TYPE LEGEND:

138	FORWARD GRAVELLY LOAM, 2 TO 9 PERCENT SLOPES
139	FORWARD GRAVELLY LOAM, 9 TO 30 PERCENT SLOPES
140	FORWARD GRAVELLY LOAM, 30 TO 75 PERCENT SLOPES
156	KIDD LOAM, 30 TO 75 PERCENT SLOPES

SOIL TYPE BOUNDARIES SHOWN ON THIS MAP ARE BASED ON THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM DATA AND SHOULD BE CONSIDERED APPROXIMATE.

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SCHRAMSBERG VINEYARDS CO

UNIVERSAL SOIL LOSS EQUATION EXHIBIT
VINEYARD BLOCKS 5 & 6

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Exp. 12/31/2024
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STATE OF CALIFORNIA

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10/27/2023 PERMIT SUBMITTAL	YMS

JOB NUMBER: 16-152

FILE: 16-152EXH-USLE.DWG

ORIGINAL SIZE: 24" X 36"

SHEET NUMBER: 4 OF 4