V. SATTUI WINERY INC.
HIBBARD RANCH

EROSION CONTROL PLAN
REVISED APRIL 2020

PPI
ENGINEERING

THIS PAGE IS INTENTIONALLY LEFT BLANK

11711201

V. SATTUI WINERY INC.
HIBBARD RANCH

EROSION CONTROL PLAN

REVISED APRIL 2020
ORIGINAL SUBMITTAL FEBRUARY 2019

PREPARED BY:

PPI ENGINEERING
2800 JEFFERSON STREET
NAPA, CALIFORNIA 94558
(707) 253-1806

TABLE OF CONTENTS

V. SATTUI WINERY INC.
HIBBARD RANCH

EROSION CONTROL PLAN

NARRATIVE

1. The nature and purpose of the land disturbing activity and the amount of grading involved.

a) This ECP addresses the development of approximately 33.5 net acres (53.6 gross acres) of proposed vineyard on the Hibbard Ranch located in southern Napa County. The ranch is located on APN 050-380-014 which consists of approximately 421 acres per the Napa County Assessor's Office.

b) Activities to be accomplished include removal of brush and trees within the proposed clearing limits, ripping, rock removal, cultivating the soil to prepare for planting, seeding cover crop, mulching, trenching for irrigation pipelines, installation of trellis system and deer fence, laying out the vine rows, and installing erosion control measures.

c) Ripping will not occur outside of the clearing limits. The maximum depth of ripping will be 48 inches unless located in areas where slope stability is a concern as outlined in the geotechnical report. The maximum depth of ripping in these areas shall not exceed 24 inches per the report.

2. General description of existing site conditions, including topography, vegetation and soils.

a) The site is located in the Browns Valley Creek and Carneros Creek Watersheds.

b) The elevations in the vineyard area range from approximately 430 to 860 feet above mean sea level per topographic mapping. Ground slopes within the project boundary range between 4 and 29 percent. There are small pockets of areas with slope over 30% in several vineyard blocks which total approximately 2.9 acres, please see Sheets 2 through 6 for the locations.

c) Topographic mapping was provided by American Aerial Mapping, Inc., flown on May 23, 2017. Supplemental topographic mapping was provided by PPI Engineering on July 18, 2019.

d) Existing vegetation consists of grass, brush and trees. The majority of the property burned in the October 2017 wildfires. The area is currently grazed. Please see the biological report prepared by WRA dated December 2018.

e) There are structures on the property. Please see the cultural resources report prepared by Flaherty Cultural Resource Services dated August 17, 2018.

f) A portion of the property is currently deer fenced. Please see Figure 4 in Appendix E for the Proposed Deer Fence map. The proposed deer fence includes blocks fenced individually and in clusters where appropriate.

g) A site visit of the property was performed by Jim Bushey and Rachel LeRoy of PPI Engineering on December 23, 2017 to evaluate the vineyard development areas.

Additional site visits of the property were performed by PPI Engineering Staff in 2017 through 2020 to further evaluate the vineyard development area. Photographs of pre-project conditions can be found in Appendix A.

3. Natural and man-made features onsite including streams, lakes, reservoirs, roads, drainage, and other areas that may be affected by the proposed activity.

a) No natural or man-made features are expected to be adversely affected by this project. An unnamed blueline stream is in the vicinity but will not be affected by the project. The existing reservoir on the property will also not be affected by the project.

b) Preliminary mapping of waters and wetlands was performed by WRA, see the Biological Resources Report dated December 2018. The Waters of the U.S. and wetlands are shown on Sheets 1 through 11.

c) The unnamed blueline stream and several tributaries on the property that meet the Napa County definition of a stream have the appropriate setbacks, determined by slope as outlined in Napa County Conservation Regulation 18.108.025, shown on Sheets 2 through 6. Prior to construction the Engineer shall stake the appropriate stream setbacks adjacent to vineyard blocks based on in-field determination of the top of bank and slope. All Waters of the U.S. not requiring a Napa County stream setback have been avoided with a minimum 50' buffer, which includes a 24' turnaround avenue and a 26' undisturbed filter strip.

d) In this ECP all wetlands are avoided with a minimum 50' buffer, which includes a 24' turnaround avenue and a 26' undisturbed filter strip.

e) There is an existing network of approximately 5.1 miles of ranch roads throughout the property. The existing road network is sufficient for access to proposed vineyard blocks; however, certain areas will be upgraded per Napa County comments, see Sheets 8 through 11. The existing roads shall be maintained and surfaced with crushed rock as needed. Please see Appendix D for the Road Plan.

4. Location and source of water for irrigation or other uses.

a) The proposed water sources are an existing reservoir and existing wells. Please see the Site Plan for the location.

5. Soil types/soil series identified in the Soil Conservation Service (SCS) Napa County Soil Survey.

a) The USDA – NRCS Web Soil Survey maps the soil within the project boundary as Fagan Clay Loam with 5 to 50 percent slopes and Felton Gravelly Loam with 30 to 50 percent slopes.

b) A small amount of rock is expected to be generated as a result of this project. Rock not used immediately will be stockpiled for future use inside the proposed clearing limits. Stockpiles are expected to be less than 20 feet in height. Rock staging areas shall be located inside of proposed clearing limits. Temporary rock stockpiles shall also be located inside of proposed clearing limits. No grading activities, ground disturbance or rock storage will occur outside of the proposed clearing limits.

6. Critical areas, if any, within the development site that have serious erosion potential or problems.

a) There are several landslides that have the potential for erosion which have been addressed by the Gilpin Geosciences geotechnical report (see Appendix F). Landslides located in proposed vineyard clearing limits will either be repaired or observe the minimum required setback per the geotechnical report.

b) There is an existing gully located near vineyard blocks 7A-1 and 7A-2. The gully shall be repaired per recommendations from the geotechnical report and other regulatory agencies.

7. Erosion calculations

a) Universal Soil Loss Equation (USLE) spreadsheets for this project are in Appendix B of this report.

b) Please see the supplemental pre-project versus post-project soil loss memorandum prepared by PPI Engineering dated April 2020.

8. Proposed erosion control methods including:

a) All drainage systems and facilities, walls, cribbing or other erosion protection devices to be constructed with, or as a part of the proposed work.

1. The final pass with disking equipment shall be performed across slopes to prevent channeling water downhill the first winter after development.

2. Straw wattles shall be installed the year of construction in the approximate locations shown on Sheets 2 through 6. Additional temporary erosion control measures shall be installed as needed.

b) Proposed vegetative erosion control measures including location, type and quantity of seed, mulch, fertilizer and irrigation, timing and methods of planting, mulching and maintenance of plant material and slopes until a specified percentage of plant coverage is uniformly established.

1. Disturbed areas shall be seeded as described below. Straw mulch shall be applied to all disturbed areas at a rate of 3,000 pounds per acre prior to October 15 of the year of construction.

2. A permanent cover crop strategy will be utilized. The permanent cover crop will be generated the first year by seeding with the following mix: Dwarf Barley at 50 pounds per acre, Blando Brome at 9 pounds per acre, and Zorro Fescue at 13 pounds per acre. A pre-approved alternative seed mix may be allowed.

   The permanent cover crop will be managed each year such that any areas which have less than 80% vegetative cover will be reseeded and mulched until adequate coverage is achieved. The permanent cover crop shall be mowed only and not disked.

3. The owner has the option of using a Dwarf Barley cover crop in the first three years that the blocks are planted to aid with vineyard establishment. If this option is used, seed shall be applied at a rate of 120 pounds per acre if broadcast or at a rate of 60 pounds per acre if drilled. The cover crop within the vineyard may be disked each spring after April 1 for the first three years. An alternative cover crop seed mix may be used upon prior approval. Each year the owner chooses to disk, the area shall be straw mulched at a rate of 3,000 pounds per acre and straw wattles installed prior to October 15. The permanent seed mix will be seeded prior to October 15 of the fourth (or earlier) year.

4. No pre-emergent herbicides will be strip sprayed in the vinerows for weed management. Contact or systemic herbicides may be applied in spring (no earlier than February 15 to ensure adequate vegetative cover in the spray strips for the remainder of the rainy season). The width of the spray strip shall be no wider than 1

foot in order to achieve 80% vegetative cover (based on a 7.5 foot minimum row spacing).

5. Fertilizer shall be applied as necessary by vineyard management personnel for both the vineyard and to ensure specified percent vegetative cover crop is achieved. Site-specific soil analysis should be performed.

6. The vineyard avenues shall be mowed only and shall not be disked. Unless otherwise noted, all avenues shall conform to the natural grade. Vineyard avenues shall be seeded and mulched prior to October 15 of the year of construction and in subsequent years in bare or disturbed areas. The cover crop will be managed each year such that any avenues that have less than 80% vegetative cover will be reseeded and mulched until adequate coverage is achieved. Seeding and mulching is not required on avenues and roads properly surfaced with gravel.

7. The proposed vine by row spacing is expected to be 4 feet by 7.5 feet, however in areas where cross-slope exceeds 15% the owner shall increase the row spacing as needed to ensure there is adequate room for equipment. Width of tillage equipment shall be no more than 75% of row width to allow for bench formation and to minimize erosion.

8. The owner has the freedom to further subdivide vineyard blocks within the footprint of the proposed vineyard for irrigation and viticulture purposes. The proposed vinerow directions shall not be altered without an approved modification from Napa County.

9. Irrigation pipelines shall be located within existing roadways and/or within proposed clearing limits. Regardless of pipeline location, pipeline trenches located on ground slopes greater than 15% shall be backfilled using imported or select native granular material to a depth of 6 inches above the pipelines such that voids do not form below haunches of pipe. Backfill shall be wheel rolled or otherwise compacted to reduce settlement. Final grading over trenches shall be mounded and water-barred such that water is directed away from trenches.

10. As stated in the Napa County Protocol for Re-Planting/Renewal of Approved Non-Tilled Vineyard Cover Crops dated March 23, 2004, when it becomes necessary, either by routine or emergency, to re-establish or renew vineyard cover crop the following measures should be followed:
    - Seek professional consultation, including soil nutrient analysis, to determine the reasons for the original cover crop's failure. Adjust soil fertility, irrigation and seed selection accordingly.
    - When tillage is necessary, alternate rows should be tilled, seeded, and straw-mulched to effectively accomplish the re-establishment/renewal process over a two-year period.
    - Tillage and re-seeding should be conducted in the following manner:

- In year 1, till to prepare seed bed and sow desired cover crop in every other row ("the evens"), leaving the alternate rows ("the odds") untilled and mowed only.
- Mulch all tilled rows having an up and down hill (perpendicular to contour) row direction with 3,000 lbs./acre of loose straw, or approved equivalent, after seeding.
- Tilled rows with cross-slope (parallel to contour) row direction and slope gradients less than 15% may not require straw mulch.
- In year 2, till to prepare seed bed and sow desired cover crop in "odd" rows.
- In year 2, leave "even" rows untilled and mowed only.
- Mulch rows tilled in year 2 as specified above.
- Put all re-establishment measures in place by October 15
- In year 3, return all rows to non-tilled culture.

9. Stormwater stabilization measures, if the development of the site will result in increased peak rates of runoff that may cause flooding or channel degradation downstream.

a) Please see the supplemental hydrologic memorandum prepared by PPI Engineering dated April 2020.

10. An implementation schedule showing the following:

a) The proposed clearing, grading, and/or construction schedule.

DATE	DESCRIPTION
April 1:	Commence clearing and tillage operations.
October 1:	All tillage and erosion control completed. This shall include complete construction of all structural measures required in these blocks which could include subsurface drainage pipelines, drop inlets, surface drainage pipelines and rolling dips.
October 15:	All winterization complete, including seeding, straw mulching, and straw wattle installation.

b) The proposed schedule for winterizing the site (generally by October 15 of each year the permit is in effect.)

The site shall be winterized and all necessary erosion control measures described in the Erosion Control Plan shall be installed by October 15.

c) The proposed schedule of installation of all interim erosion and sediment control measures, including the stage of completion of such devices at the end of the grading season (generally October 15) of each year the permit will be in effect.

See Item 10a).

d) The schedule for installation of permanent erosion and sediment control devices where required.

See Item 10a).

11. The estimated cost of implementation of the erosion and sediment control measures.

Typical costs for installing erosion control measures as described in this plan range from $5,000 to $20,000 per acre.

V. SATTUI WINERY INC.
HIBBARD RANCH

EROSION CONTROL PLAN

S T A N D A R D P R O V I S I O N S

SECTION 1 - SCOPE OF WORK

These specifications cover the construction of the erosion control measures for approximately 33.5 acres of vineyard to be developed by V. Sattui Winery Inc.

The drawing numbered 11711201C, Sheets 1 through 11, and these Specifications describe in detail the construction of the complete erosion control system. Requests for further information or clarification of the work to be done can be made to Jim Bushey or Matt Bueno at the Napa office of PPI Engineering, phone (707) 253-1806.

All costs for the complete construction of the erosion control system must be included in the bid items, since no other payment will be made outside of the bid items. This includes all costs for moving onto and off of the job site, all equipment, tools, materials, labor, fuel, taxes, and incidentals for furnishing and installing the erosion control system.

Surveying adequate for construction will be provided by the Owner, at the Owner's expense. The Contractor will be responsible for preserving construction survey stakes and markers for the duration of their intended use. Any restaking costs or additional survey work requested by the Contractor shall be deducted from the final payment to the Contractor. The Owner does not guarantee that the project being bid will be awarded. The Owner also reserves the right to change the quantities of actual work performed as needed with payment made according to the new quantities at the unit price bid.

SECTION 2 - AUTHORITY OF OWNER AND ENGINEER

The property is owned by V. Sattui Winery Inc. V. Sattui Winery Inc. or the appointed representative shall have the final say in the event of a dispute with the Contractor.

The Owner shall appoint PPI Engineering as the Engineer to perform periodic review of the work. PPI Engineering shall report any unsatisfactory work to the Owner. The Contractor shall be responsible for any engineering fees or repair costs associated with bringing the unsatisfactory work into compliance with the Plans and Specifications.

SECTION 3 - CHANGES IN WORK

Materials and the manner of performance of the work performed in this contract shall be according to the Plans and Specifications. Modifications to the Plans or Specifications shall be agreed upon in writing by the Contractor, Owner, and Engineer before the work in question is performed. Materials and construction methods shall be as specified on the Plans and Specifications. The burden of proof that a given material or method constitutes an equivalent to the one specified will rest with the Contractor.

SECTION 4 - UTILITIES

At least two working days prior to beginning any excavation on the project, the Contractor shall contact Underground Service Alert (USA) at 1-800-642-2444 and request field location of all existing utilities.

Certain facilities at the site are existing. The Contractor shall be careful to avoid damaging existing facilities and shall notify the Owner immediately if any damage does occur. The cost of repairing any damage shall be the sole responsibility of the Contractor.

SECTION 5 - PROSECUTION OF THE WORK

Unless otherwise provided, the contract time shall commence upon issuance of a Notice to Proceed by the Owner. The work shall start within ten days thereafter and be diligently prosecuted to completion within the time specified in the Contractor's bid. If weather conditions prevent completion of the project within the specified amount of time, the Owner may extend the completion date of the project.

SECTION 6 - RESPONSIBILITIES OF THE CONTRACTOR

The Contractor agrees that in accordance with generally accepted construction practices, Contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the project, including the safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours. Contractor further agrees to defend, indemnify and hold design professional harmless from any and all liability, real or alleged, in connection with the performance of the work on this project, excepting liability arising from the sole negligence of design professional.

The Contractor shall be responsible for controlling dust and mud generated from construction activities. The Contractor shall not allow dust or mud to obstruct vehicular traffic on County roads or State Highways. The Contractor shall be responsible for cleaning all vehicles prior to leaving the site as required by the California Highway Patrol. The Contractor, at their own expense, shall

provide adequate dust control and prevention of mud tracking on roads, and take other preventative measures as directed by the Owner.

The Contractor shall be responsible for following all safety laws that may be applicable. Of particular concern are the trench safety regulations issued by CAL-OSHA. The Contractor alone shall be responsible for the safety of their equipment and methods and for any damage or injury which may result from their failure, improper construction, maintenance, or operation.

The Contractor shall be responsible for installing necessary sediment retention measures to keep sediment from leaving the site if construction activities continue beyond October 1.

The Contractor shall keep the work site clean and free of rubbish and debris throughout the project. Materials and equipment shall be removed from the site as soon as they are no longer necessary or the project is completed.

The Contractor shall also be responsible for ensuring that all permits which are necessary for construction have been obtained and that copies of these permits are maintained onsite at all times.

The Contractor shall, at their own expense, furnish all necessary light, power, pumps, and water necessary for the work.

SECTION 7 - MEASUREMENT AND PAYMENT

Payment shall be made at the unit prices bid according to the actual quantities installed. Measurement of the final quantities shall be the responsibility of the Owner's Engineer.

The Engineer shall periodically observe the project during construction and upon completion of the project any unfinished or unacceptable work observed will be brought to the Contractor’s attention verbally and in writing. Final payment will be made upon satisfactory completion of all work items required by these Plans and Specifications.

SECTION 8 - GUARANTEE

In addition to the guarantees from suppliers, the Contractor shall guarantee the work he performs for a period of two years. Any repairs needed to the system within two years of completion due to faulty workmanship or materials shall be promptly repaired at no expense to the Owner. Any costs incurred by the Owner and/or Engineer within two years of completion due to rubbish or debris placed in a trench or other excavation shall be paid by the Contractor.

Unless otherwise provided in writing, payment by the Owner to the Contractor for installation of this system shall constitute acceptance of all provisions in this document by the Contractor.

V. SATTUI WINERY INC.
HIBBARD RANCH

EROSION CONTROL PLAN

S P E C I A L P R O V I S I O N S

SECTION 1 - SUBSURFACE DRAINAGE PIPELINE

1.1 GENERAL:

Perforated subsurface drainlines shall be installed in certain areas to reduce saturated conditions in the rootzone and to improve slope stability. Drainlines shall be installed as shown on Detail 2, Sheet 7 and as staked in the field.

1.2 MATERIALS:

Corrugated plastic pipe for use as drain tubing shall meet the standards of SCS 606 Specifications. In addition, all three through twenty four inch diameter tubing shall meet the standards of ASTM F667. Perforated pipe from three to ten inches in diameter shall also meet the standards of AASHTO 252. All perforations in the tubing shall be free of tag ends.

Bent or damaged tubing shall not be used in the drainage system and shall be removed from the job site.

Pipe connections shall be made with fittings manufactured by the same manufacturer who made the pipe. All connections shall be securely fastened and the resulting connection shall not have gaps greater than 1/4 inch wide.

1.3 GRAVEL ENVELOPE:

Two materials are permissible for use as an envelope material.

Gravel envelope material may be volcanic rock. It shall be free of organic matter, clay, or other material which could decrease it's hydraulic conductivity with time. One hundred percent of the material must pass the 1-1/2" clear square openings. Ninety to one hundred percent must pass through the 3/4" clear square openings. At least 50% must pass through the 3/8" clear square openings. No more than 15% may pass the #20 U.S. Standard Sieve. At least 8% must pass the #60 U.S. Standard Sieve. No more than 3% may pass the #200 U.S. Standard Sieve.

Gravel envelope material may also be a blend of clean hard sand and gravel. It shall be free of organic matter, clay, or other material that would decrease its hydraulic conductivity with time. The material shall be well graded. The coefficient of uniformity (D_{60}/D_{10}) must be greater than 4, and the coefficient of curvature (($D_{30}^2/(D_{10} \times D_{60})$) must be between 1 and 3. One hundred percent must

pass the 1/2" clear square openings. No more than 5% may pass the #100 U.S. Standard Sieve. An example of this material would be 80% 3/8 crushed rock and 20% washed concrete sand.

For perforated drains, the envelope must be at least 3 inches thick on the sides and below the tubing and shall extend above the tubing to the depth specified on the detail. The loader operator shall avoid scooping up soil or other debris with the envelope material while loading the hopper on the trencher or plow and while placing the envelope material in trenches excavated by backhoe.

It will be the responsibility of the Contractor to remove and dispose of all envelope material not used on the project.

A sample of the proposed gravel envelope material shall be provided to the Engineer for approval. Any material moved onto the job site which is deemed unacceptable by the Engineer shall be promptly removed from the site at no cost to the owner.

1.4 TRENCHING AND TUBING PLACEMENT:

The Contractor may use a trencher, or drainage plow with vertical soil displacement, or backhoe/excavator for the placement of the tubing as dictated by soil conditions. The operator shall be skillful in laying the tubing. Grade control may be established by visual control with grade stakes set no more than 100 feet apart, or by laser control with grade stakes set no more than 200 feet apart.

Construction staking shall be provided by the Owner's Engineer. The slope, alignment, and depth of placement of the tubing shall be as shown on the Plans and as staked in the field. The minimum allowable slope shall be 0.5% unless otherwise approved by the Engineer.

A gradual variation of no more than 0.10 foot from grade will be allowed where slopes are 2% or less. Where slopes are greater than 2%, a gradual variation of no more than 0.20 foot from grade will be allowed. No reverse grade will be allowed. A gradual variation of no more than 1 foot from design alignment is allowed.

Rocks or clods shall not be allowed to fall upon or otherwise strike the tubing during any phase of construction.

Stretching of the tubing should be avoided during installation. No more than 10% stretch will be allowed.

SECTION 2 – ROLLING DIP

2.1 GENERAL:

Rolling dips shall be constructed as shown on Detail 3, Sheet 7, in locations shown on the plans and as specified by the Engineer.

2.2 INSTALLATION:

The existing roadway within the location of the rolling dip shall be scarified and any vegetation shall be removed and thoroughly incorporated. Excavation into the existing road bed shall begin approximately 20 to 25 feet uphill from the rolling dip location, progressively steepening the grade until the axis is reached. The axis of the rolling dip shall be angled approximately 30 degrees to the road alignment. Fill shall be used to achieve approximately 12" minimum of elevation between the axis of the trough and the top of the reverse grade. Fill shall be moisture conditioned as necessary and compacted to 90% compaction per ASTM D1557. Construction shall be such that vehicles can easily drive over the rolling dips yet allows the trough to effectively convey surface flow, when present, off the road. Existing dense vegetation shall help diffuse the surface flow on the downstream side of the trough. In the event that existing grade is too rocky for uniform excavation, the Engineer may approve the use of Caltrans Class 2 Aggregate Base to construct the rolling dip as shown in Detail 3, Sheet 7.

SECTION 3 – ROCK APRON

3.1 GENERAL:

Rock aprons will be installed at the outlets of pipes and ditches to help disperse concentrated flow and to minimize erosion downstream of the outlet. Rock aprons shall be installed where shown on the Plans and constructed as shown in Detail 5, Sheet 7.

3.2 MATERIALS:

Rock used in the construction of rock aprons shall be Cal Trans Class "Facing" per Cal Trans Standard Specifications Section 72-2 or equivalent size field rock generated onsite. Filter fabric shall be Mirafi 140N or equal.

3.3 INSTALLATION:

Rock aprons shall be constructed as shown on Detail 5, Sheet 7. All rock shall be placed on undisturbed native vegetation if possible. If soil is disturbed place rock on filter fabric. The apron shall extend approximately 10 feet from the outlet of the pipe. The upstream end of the apron shall be approximately 6 feet wide. The downstream end shall be approximately 10 feet wide. A small keyway shall be excavated into native material at the downstream end of the spreader as shown in the detail. A rock berm shall be constructed at the downstream end of the apron as shown on the detail.

SECTION 4 - TEMPORARY MEASURES

4.1 GENERAL:

Temporary erosion control measures shall be constructed by the Owner. These measures can include water bars, straw wattles, straw mulching, straw bale dikes, and other practices as needed. The measures shall be constructed in conformance with the detail drawings and maintained in a functional condition throughout the rainy season.

SECTION 5 - MAINTENANCE

5.1 GENERAL:

The erosion control measures described in these Specifications and shown on the Plans and Details require regular maintenance in order to function as intended. Vineyard management personnel shall assure that the erosion control measures are monitored throughout the rainy season each year and necessary repairs and/or maintenance are performed immediately. Maintenance operations shall include, but not be limited to the following activities.

5.2 STRAW WATTLES:

Straw wattles shall be monitored and repaired as needed to ensure water does not run under the wattle or between adjacent wattles. Should excessive erosion cause the wattle to fill with sediment, this material shall be removed to a protected location and the source of the sediment located and protected as needed.

5.3 ROLLING DIPS:

The rolling dips shall be monitored and repaired as needed to ensure water is directed off of the roadway. Any accumulated sediment shall be cleaned out by hand. In the event that a rolling dip requires removal of sediment on a regular basis, another rolling dip should be constructed uphill as this indicates that spacing is too wide between rolling dips.

APPENDIX A

PHOTOGRAPHIC DOCUMENTATION

Photo 1

10/25/18

Photo 2

12/3/2018

Photo 3

11/15/18

Photo 4

12/3/2018

APPENDIX B

USLE CALCULATIONS

V. SATTUI WINERY INC.
HIBBARD RANCH
PERCENT VEGETATIVE COVER AND USLE "R" VALUE, BY BLOCK

Block	Soil(s)	USLE R value	% cover crop
1A	131	65	80
1B	131, 133, 136	65	80
1C	136	65	80
1D	131, 133	65	80
2A	136	65	80
2B	136	65	80
3	132, 136	65	80
4A	132	75	80
4B	132, 136	75	80
4C	132	75	80
5	132, 136	65	80
6A	132	75	80
6B	132	75	80
6C	132, 133	75	80
6D	132	75	80
6E	132, 133	75	80
7A-1	133, 136	65	80
7A-2	133, 136	65	80
7B	133	65	80
7C	133, 136	65	80
7D	131, 133	65	80
8A	131	65	80
8B	131, 133	65	80
8C	131, 133	65	80
8D	131, 133	65	80
8E	131	65	80
8F	131	65	80
8G	131	65	80
8H	131,133	65	80
9	132, 133	65	80

131: Fagan clay loam, 5-15% slope
132: Fagan clay loam, 15-30% slope
133: Fagan clay loam, 30-50% slope
136: Felton gravelly loam, 30-50% slope

PPI Engineering

Napa County
Maximum Length of Slope
for a soil loss of 6 tons per acre

NAME: Hibbard Ranch DATE: 7/10/17

Cover Type: Permanent Cover Crop
Soil Unit No. (100-182)--- 131 & 132 & 133 -K= 0.32
Soil Name Fagan -R= 65
-T= 4

Percent Cover		65% Up & Down Hill	70% Up & Down Hill	75% Up & Down Hill	80% Up & Down Hill	85% Up & Down Hill	90% Up & Down Hill
		C= 0.058 P= 1.0	C= 0.046 P= 1.0	C= 0.034 P= 1.0	C= 0.022 P= 1.0	C= 0.015 P= 1.0	C= 0.010 P= 1.0
PERCENT SLOPE	2	4,435,908	9,606,151	26,311,484	112,287,696	402,503,525	1,555,034,269
	4	54,622	97,509	207,607	616,429	1,605,874	4,425,269
	6	5,484	8,719	15,960	38,118	81,996	184,492
	8	2,525	4,015	7,349	17,553	37,758	84,956
	10	1,347	2,142	3,921	9,364	20,144	45,324
	12	815	1,296	2,373	5,667	12,191	27,429
	14	535	850	1,556	3,716	7,995	17,988
	16	372	591	1,083	2,586	5,562	12,515
	18	271	431	788	1,883	4,050	9,113
	20	205	325	595	1,422	3,058	6,880
	22	159	253	463	1,105	2,378	5,350
	24	127	201	369	881	1,895	4,263
	26	103	164	300	717	1,542	3,469
	28	85	136	249	594	1,277	2,873
	30	72	114	209	499	1,074	2,417
	32	61	97	178	426	916	2,061
	34	53	84	154	368	791	1,779
	36	46	73	134	321	690	1,552
	38	41	65	118	283	608	1,368
	40	36	57	105	251	540	1,216
	42	32	51	94	225	484	1,089
	44	29	46	85	203	437	983
	46	27	42	77	184	397	893
	48	24	39	71	169	363	816
	50	22	35	65	155	333	750

NOTES:
C=Cover and Management Factor
P=Practice Factor

PPI Engineering

Napa County
Maximum Length of Slope
for a soil loss of 6 tons per acre

NAME: Hibbard Ranch DATE: 7/10/17

Cover Type: Permanent Cover Crop
Soil Unit No. (100-182)--- 131 & 132 & 133 -K= 0.32
Soil Name Fagan -R= 65
-T= 4

Percent Cover		65% Cross-Slope	70% Cross-Slope	75% Cross-Slope	80% Cross-Slope	85% Cross-Slope	90% Cross-Slope
		C= 0.058 P= 0.6	C= 0.046 P= 0.6	C= 0.034 P= 0.6	C= 0.022 P= 0.6	C= 0.015 P= 0.6	C= 0.010 P= 0.6
PERCENT SLOPE	2	24,348,803	52,728,388	144,424,356	616,349,804	2,209,351,318	8,535,619,695
	4	195,881	349,677	744,499	2,210,573	5,758,819	15,869,438
	6	15,234	24,219	44,332	105,884	227,768	512,478
	8	7,015	11,153	20,414	48,758	104,884	235,990
	10	3,743	5,950	10,891	26,012	55,956	125,900
	12	2,265	3,601	6,591	15,742	33,863	76,191
	14	1,485	2,361	4,322	10,324	22,207	49,966
	16	1,033	1,643	3,007	7,183	15,451	34,765
	18	753	1,196	2,190	5,230	11,251	25,314
	20	568	903	1,653	3,949	8,494	19,111
	22	442	702	1,286	3,070	6,605	14,860
	24	352	560	1,024	2,447	5,263	11,842
	26	286	455	834	1,991	4,282	9,635
	28	237	377	690	1,649	3,547	7,981
	30	200	317	581	1,387	2,984	6,714
	32	170	271	495	1,183	2,545	5,726
	34	147	234	428	1,021	2,197	4,942
	36	128	204	373	891	1,917	4,312
	38	113	180	329	785	1,689	3,799
	40	100	160	292	698	1,501	3,377
	42	90	143	262	625	1,345	3,025
	44	81	129	236	564	1,213	2,730
	46	74	117	215	512	1,102	2,480
	48	67	107	196	468	1,008	2,267
	50	62	98	180	431	926	2,084

NOTES:
C=Cover and Management Factor
P=Practice Factor

PPI Engineering

Napa County
Maximum Length of Slope
for a soil loss of 6 tons per acre

NAME: Hibbard Ranch DATE: 7/10/17

Cover Type: Permanent Cover Crop
Soil Unit No. (100-182)--- 131 & 132 & 133 -K= 0.32
Soil Name Fagan -R= 65
-T= 4

Percent Cover		65% Semi-Benched	70% Semi-Benched	75% Semi-Benched	80% Semi-Benched	85% Semi-Benched	90% Semi-Benched
		C= 0.058 P= 0.5	C= 0.046 P= 0.5	C= 0.034 P= 0.5	C= 0.022 P= 0.5	C= 0.015 P= 0.5	C= 0.010 P= 0.5
PERCENT SLOPE	2	44,711,048	96,823,709	265,202,529	1,131,786,437	4,056,971,933	15,673,727,058
	4	308,990	551,595	1,174,404	3,487,048	9,084,197	25,033,102
	6	21,937	34,876	63,838	152,473	327,986	737,968
	8	10,102	16,060	29,397	70,212	151,033	339,825
	10	5,389	8,568	15,683	37,458	80,576	181,296
	12	3,261	5,185	9,491	22,668	48,762	109,715
	14	2,139	3,400	6,224	14,866	31,978	71,951
	16	1,488	2,366	4,331	10,343	22,249	50,061
	18	1,084	1,723	3,153	7,531	16,201	36,452
	20	818	1,301	2,381	5,686	12,231	27,521
	22	636	1,011	1,851	4,421	9,511	21,399
	24	507	806	1,475	3,523	7,579	17,053
	26	412	656	1,200	2,867	6,167	13,875
	28	342	543	994	2,374	5,108	11,493
	30	287	457	836	1,998	4,297	9,668
	32	245	390	713	1,704	3,665	8,245
	34	212	336	616	1,470	3,163	7,117
	36	185	293	537	1,283	2,760	6,210
	38	163	259	473	1,130	2,432	5,471
	40	145	230	421	1,005	2,161	4,863
	42	130	206	377	900	1,936	4,356
	44	117	186	340	812	1,747	3,931
	46	106	169	309	738	1,587	3,571
	48	97	154	282	674	1,451	3,264
	50	89	142	260	620	1,334	3,000

NOTES:
C=Cover and Management Factor
P=Practice Factor

PPI Engineering

Napa County
Maximum Length of Slope
for a soil loss of 6 tons per acre

NAME: Hibbard Ranch DATE: 7/10/17

Cover Type: Permanent Cover Crop
Soil Unit No. (100-182)--- 131 & 132 & 133 -K= 0.32
Soil Name Fagan -R= 75
-T= 4

Percent Cover		65% Up & Down Hill	70% Up & Down Hill	75% Up & Down Hill	80% Up & Down Hill	85% Up & Down Hill	90% Up & Down Hill
		C= 0.058 P= 1.0	C= 0.046 P= 1.0	C= 0.034 P= 1.0	C= 0.022 P= 1.0	C= 0.015 P= 1.0	C= 0.010 P= 1.0
	2	2,753,107	5,961,972	16,329,988	69,690,357	249,810,222	965,118,148
	4	38,194	68,183	145,169	431,036	1,122,902	3,094,353
	6	4,119	6,549	11,987	28,631	61,588	138,574
	8	1,897	3,016	5,520	13,184	28,361	63,812
	10	1,012	1,609	2,945	7,034	15,130	34,043
	12	612	974	1,782	4,257	9,156	20,602
P	14	402	639	1,169	2,791	6,005	13,511
E	16	279	444	813	1,942	4,178	9,400
R	18	203	323	592	1,414	3,042	6,845
C	20	154	244	447	1,068	2,297	5,168
E	22	119	190	348	830	1,786	4,018
N	24	95	151	277	662	1,423	3,202
T	26	77	123	225	538	1,158	2,605
	28	64	102	187	446	959	2,158
S	30	54	86	157	375	807	1,815
L	32	46	73	134	320	688	1,548
O	34	40	63	116	276	594	1,336
P	36	35	55	101	241	518	1,166
E	38	31	49	89	212	457	1,027
	40	27	43	79	189	406	913
	42	24	39	71	169	364	818
	44	22	35	64	153	328	738
	46	20	32	58	139	298	671
	48	18	29	53	127	272	613
	50	17	27	49	116	250	563

NOTES:
C=Cover and Management Factor
P=Practice Factor

PPI Engineering

Napa County
Maximum Length of Slope
for a soil loss of 6 tons per acre

NAME: Hibbard Ranch DATE: 7/10/17

Cover Type: Permanent Cover Crop
Soil Unit No. (100-182)--- 131 & 132 & 133 -K= 0.32
Soil Name Fagan -R= 75
-T= 4

Percent Cover		65% Cross-Slope	70% Cross-Slope	75% Cross-Slope	80% Cross-Slope	85% Cross-Slope	90% Cross-Slope
		C= 0.058 P= 0.6	C= 0.046 P= 0.6	C= 0.034 P= 0.6	C= 0.022 P= 0.6	C= 0.015 P= 0.6	C= 0.010 P= 0.6
PERCENT SLOPE	2	15,111,868	32,725,404	89,635,688	382,532,008	1,371,214,188	5,297,556,226
	4	136,969	244,510	520,588	1,545,735	4,026,833	11,096,648
	6	11,443	18,191	33,298	79,531	171,079	384,928
	8	5,269	8,377	15,333	36,623	78,780	177,254
	10	2,811	4,469	8,180	19,538	42,029	94,565
	12	1,701	2,705	4,951	11,824	25,435	57,228
	14	1,116	1,774	3,247	7,754	16,680	37,530
	16	776	1,234	2,259	5,395	11,605	26,112
	18	565	899	1,645	3,928	8,451	19,014
	20	427	678	1,242	2,966	6,380	14,355
	22	332	527	966	2,306	4,961	11,162
	24	264	420	769	1,838	3,953	8,895
	26	215	342	626	1,495	3,217	7,237
	28	178	283	519	1,239	2,664	5,995
	30	150	238	436	1,042	2,241	5,043
	32	128	203	372	889	1,911	4,301
	34	110	175	321	767	1,650	3,712
	36	96	153	280	669	1,440	3,239
	38	85	135	247	590	1,268	2,854
	40	75	120	219	524	1,127	2,536
	42	68	107	197	469	1,010	2,272
	44	61	97	177	424	911	2,051
	46	55	88	161	385	828	1,863
	48	51	80	147	352	757	1,703
	50	47	74	135	323	696	1,565

NOTES:
C=Cover and Management Factor
P=Practice Factor

PPI Engineering

Napa County
Maximum Length of Slope
for a soil loss of 6 tons per acre

NAME: Hibbard Ranch DATE: 7/10/17

Cover Type: Permanent Cover Crop
Soil Unit No. (100-182)--- 131 & 132 & 133 -K= 0.32
Soil Name Fagan -R= 75
-T= 4

Percent Cover		65% Semi-Benched	70% Semi-Benched	75% Semi-Benched	80% Semi-Benched	85% Semi-Benched	90% Semi-Benched
		C= 0.058 P= 0.5	C= 0.046 P= 0.5	C= 0.034 P= 0.5	C= 0.022 P= 0.5	C= 0.015 P= 0.5	C= 0.010 P= 0.5
PERCENT SLOPE	2	27,749,513	60,092,772	164,595,584	702,433,156	2,517,923,442	9,727,758,889
	4	216,060	385,701	821,197	2,438,306	6,352,092	17,504,306
	6	16,477	26,195	47,949	114,524	246,354	554,296
	8	7,588	12,063	22,080	52,737	113,443	255,246
	10	4,048	6,435	11,780	28,135	60,522	136,173
	12	2,450	3,895	7,129	17,027	36,626	82,408
	14	1,607	2,554	4,675	11,166	24,019	54,043
	16	1,118	1,777	3,253	7,769	16,712	37,601
	18	814	1,294	2,368	5,657	12,169	27,380
	20	614	977	1,788	4,271	9,187	20,671
	22	478	760	1,390	3,321	7,144	16,073
	24	381	605	1,108	2,646	5,693	12,809
	26	310	493	902	2,153	4,632	10,422
	28	257	408	747	1,784	3,837	8,632
	30	216	343	628	1,500	3,228	7,262
	32	184	293	536	1,280	2,752	6,193
	34	159	253	462	1,104	2,376	5,346
	36	139	220	403	964	2,073	4,664
	38	122	194	355	849	1,826	4,109
	40	109	173	316	755	1,623	3,652
	42	97	155	283	676	1,454	3,272
	44	88	140	255	610	1,312	2,953
	46	80	127	232	554	1,192	2,683
	48	73	116	212	507	1,090	2,452
	50	67	107	195	466	1,002	2,254

NOTES:
C=Cover and Management Factor
P=Practice Factor

PPI Engineering

Napa County
Maximum Length of Slope
for a soil loss of 5 tons per acre

NAME: Hibbard Ranch DATE: 7/10/17

Cover Type: Permanent Cover Crop
Soil Unit No. (100-182)--- 136 -K= 0.15
Soil Name Felton -R= 65
-T= 3

Percent Cover		65% Up & Down Hill	70% Up & Down Hill	75% Up & Down Hill	80% Up & Down Hill	85% Up & Down Hill	90% Up & Down Hill
		C= 0.058 P= 1.0	C= 0.046 P= 1.0	C= 0.034 P= 1.0	C= 0.022 P= 1.0	C= 0.015 P= 1.0	C= 0.010 P= 1.0
	2	30,193,024	65,384,300	179,089,211	764,286,604	2,739,641,685	10,584,346,333
	4	230,178	410,903	874,855	2,597,626	6,767,141	18,648,048
	6	17,333	27,556	50,440	120,472	259,149	583,086
	8	7,982	12,689	23,227	55,476	119,335	268,504
	10	4,258	6,770	12,392	29,596	63,665	143,246
	12	2,577	4,097	7,499	17,911	38,528	86,689
P	14	1,690	2,687	4,918	11,746	25,267	56,850
E	16	1,176	1,869	3,422	8,172	17,580	39,554
R	18	856	1,361	2,492	5,951	12,801	28,802
C	20	646	1,028	1,881	4,493	9,664	21,745
E	22	503	799	1,463	3,493	7,515	16,908
N	24	401	637	1,166	2,784	5,988	13,474
T	26	326	518	948	2,265	4,872	10,963
	28	270	429	786	1,876	4,036	9,081
S	30	227	361	661	1,578	3,395	7,639
L	32	194	308	564	1,346	2,895	6,515
O	34	167	266	486	1,162	2,499	5,623
P	36	146	232	424	1,014	2,181	4,907
E	38	129	204	374	893	1,921	4,323
	40	114	182	332	794	1,708	3,842
	42	102	163	298	711	1,530	3,442
	44	92	147	269	642	1,381	3,106
	46	84	133	244	583	1,254	2,822
	48	77	122	223	533	1,146	2,579
	50	70	112	205	490	1,054	2,371

NOTES:
C=Cover and Management Factor
P=Practice Factor

PPI Engineering

Napa County
Maximum Length of Slope
for a soil loss of 5 tons per acre

NAME: Hibbard Ranch DATE: 7/10/17

Cover Type: Permanent Cover Crop
Soil Unit No. (100-182)--- 136 -K= 0.15
Soil Name Felton -R= 65
-T= 3

Percent Cover		65% Cross-Slope	70% Cross-Slope	75% Cross-Slope	80% Cross-Slope	85% Cross-Slope	90% Cross-Slope
		C= 0.058 P= 0.6	C= 0.046 P= 0.6	C= 0.034 P= 0.6	C= 0.022 P= 0.6	C= 0.015 P= 0.6	C= 0.010 P= 0.6
PERCENT SLOPE	2	165,730,218	358,895,962	983,024,894	4,195,187,152	15,037,957,672	58,097,726,080
	4	825,440	1,473,536	3,137,314	9,315,336	24,267,615	66,873,683
	6	48,148	76,545	140,111	334,645	719,859	1,619,683
	8	22,171	35,248	64,519	154,100	331,486	745,844
	10	11,828	18,805	34,421	82,212	176,847	397,906
	12	7,158	11,380	20,831	49,752	107,023	240,802
	14	4,694	7,463	13,661	32,627	70,185	157,917
	16	3,266	5,193	9,505	22,701	48,833	109,873
	18	2,378	3,781	6,921	16,530	35,558	80,005
	20	1,796	2,855	5,225	12,480	26,845	60,402
	22	1,396	2,220	4,063	9,704	20,874	46,966
	24	1,113	1,769	3,238	7,733	16,634	37,427
	26	905	1,439	2,634	6,292	13,534	30,452
	28	750	1,192	2,182	5,212	11,211	25,224
	30	631	1,003	1,836	4,384	9,431	21,220
	32	538	855	1,565	3,739	8,043	18,097
	34	464	738	1,351	3,227	6,942	15,621
	36	405	644	1,179	2,816	6,058	13,630
	38	357	567	1,039	2,481	5,337	12,008
	40	317	504	923	2,205	4,743	10,673
	42	284	452	827	1,976	4,250	9,562
	44	256	408	746	1,783	3,835	8,628
	46	233	370	678	1,620	3,484	7,838
	48	213	339	620	1,480	3,184	7,164
	50	196	311	570	1,361	2,927	6,585

NOTES:
C=Cover and Management Factor
P=Practice Factor

PPI Engineering

Napa County
Maximum Length of Slope
for a soil loss of 5 tons per acre

NAME: Hibbard Ranch DATE: 7/10/17

Cover Type: Permanent Cover Crop
Soil Unit No. (100-182)--- 136 -K= 0.15
Soil Name Felton -R= 65
-T= 3

Percent Cover		65% Semi-Benched	70% Semi-Benched	75% Semi-Benched	80% Semi-Benched	85% Semi-Benched	90% Semi-Benched
		C= 0.058 P= 0.5	C= 0.046 P= 0.5	C= 0.034 P= 0.5	C= 0.022 P= 0.5	C= 0.015 P= 0.5	C= 0.010 P= 0.5
	2	304,325,906	659,030,925	1,805,101,965	7,703,508,442	27,613,794,018	106,683,279,462
	4	1,302,082	2,324,416	4,948,927	14,694,393	38,280,730	105,489,287
	6	69,332	110,224	201,760	481,889	1,036,597	2,332,343
	8	31,927	50,757	92,908	221,904	477,340	1,074,015
	10	17,033	27,079	49,566	118,385	254,660	572,985
	12	10,308	16,387	29,996	71,644	154,113	346,755
P	14	6,760	10,747	19,671	46,984	101,067	227,400
E	16	4,703	7,477	13,687	32,690	70,319	158,218
R	18	3,425	5,445	9,966	23,803	51,203	115,207
C	20	2,586	4,111	7,524	17,971	38,657	86,979
E	22	2,010	3,196	5,850	13,973	30,059	67,632
N	24	1,602	2,547	4,662	11,135	23,954	53,895
T	26	1,304	2,072	3,793	9,060	19,490	43,851
	28	1,080	1,717	3,142	7,505	16,143	36,322
S	30	908	1,444	2,643	6,313	13,581	30,556
L	32	775	1,232	2,254	5,384	11,582	26,059
O	34	669	1,063	1,946	4,647	9,997	22,494
P	36	583	928	1,698	4,055	8,723	19,626
E	38	514	817	1,496	3,573	7,685	17,292
	40	457	726	1,329	3,175	6,830	15,369
	42	409	651	1,191	2,845	6,119	13,769
	44	369	587	1,075	2,567	5,522	12,425
	46	336	533	976	2,332	5,017	11,287
	48	307	488	892	2,132	4,585	10,317
	50	282	448	820	1,959	4,215	9,483

NOTES:
C=Cover and Management Factor
P=Practice Factor

PPI Engineering

Napa County
Maximum Length of Slope
for a soil loss of 5 tons per acre

NAME: Hibbard Ranch DATE: 7/10/17

Cover Type: Permanent Cover Crop
Soil Unit No. (100-182)--- 136 -K= 0.15
Soil Name Felton -R= 75
-T= 3

Percent Cover		65% Up & Down Hill	70% Up & Down Hill	75% Up & Down Hill	80% Up & Down Hill	85% Up & Down Hill	90% Up & Down Hill
		C= 0.058 P= 1.0	C= 0.046 P= 1.0	C= 0.034 P= 1.0	C= 0.022 P= 1.0	C= 0.015 P= 1.0	C= 0.010 P= 1.0
	2	18,739,031	40,580,183	111,150,121	474,347,663	1,700,334,174	6,569,080,139
	4	160,951	287,322	611,739	1,816,381	4,731,899	13,039,580
	6	13,019	20,698	37,886	90,488	194,650	437,962
	8	5,995	9,531	17,446	41,669	89,634	201,676
	10	3,198	5,085	9,307	22,230	47,819	107,594
	12	1,936	3,077	5,633	13,453	28,939	65,113
P	14	1,269	2,018	3,694	8,822	18,978	42,701
E	16	883	1,404	2,570	6,138	13,204	29,710
R	18	643	1,022	1,871	4,470	9,615	21,633
C	20	486	772	1,413	3,375	7,259	16,333
E	22	378	600	1,099	2,624	5,644	12,700
N	24	301	478	875	2,091	4,498	10,120
T	26	245	389	712	1,701	3,660	8,234
	28	203	322	590	1,409	3,031	6,820
S	30	171	271	496	1,186	2,550	5,738
L	32	145	231	423	1,011	2,175	4,893
O	34	126	200	365	873	1,877	4,224
P	36	110	174	319	761	1,638	3,685
E	38	97	153	281	671	1,443	3,247
	40	86	136	250	596	1,283	2,886
	42	77	122	224	534	1,149	2,585
	44	69	110	202	482	1,037	2,333
	46	63	100	183	438	942	2,120
	48	58	92	168	400	861	1,937
	50	53	84	154	368	791	1,781

NOTES:
C=Cover and Management Factor
P=Practice Factor

PPI Engineering

Napa County
Maximum Length of Slope
for a soil loss of 5 tons per acre

NAME: Hibbard Ranch DATE: 7/10/17

Cover Type: Permanent Cover Crop
Soil Unit No. (100-182)--- 136 -K= 0.15
Soil Name Felton -R= 75
-T= 3

Percent Cover		65% Cross-Slope	70% Cross-Slope	75% Cross-Slope	80% Cross-Slope	85% Cross-Slope	90% Cross-Slope
		C= 0.058 P= 0.6	C= 0.046 P= 0.6	C= 0.034 P= 0.6	C= 0.022 P= 0.6	C= 0.015 P= 0.6	C= 0.010 P= 0.6
PERCENT SLOPE	2	102,858,981	222,745,577	610,105,632	2,603,705,485	9,333,174,291	36,057,835,460
	4	577,186	1,030,365	2,193,755	6,513,715	16,969,042	46,761,181
	6	36,164	57,493	105,239	251,356	540,694	1,216,562
	8	16,653	26,475	48,461	115,746	248,983	560,212
	10	8,884	14,124	25,854	61,750	132,832	298,872
	12	5,377	8,548	15,646	37,370	80,386	180,869
	14	3,526	5,606	10,261	24,507	52,717	118,613
	16	2,453	3,900	7,139	17,051	36,679	82,527
	18	1,786	2,840	5,198	12,416	26,708	60,093
	20	1,349	2,144	3,925	9,374	20,164	45,368
	22	1,049	1,667	3,052	7,289	15,679	35,277
	24	836	1,329	2,432	5,808	12,494	28,112
	26	680	1,081	1,979	4,726	10,166	22,873
	28	563	895	1,639	3,914	8,420	18,946
	30	474	753	1,379	3,293	7,084	15,938
	32	404	642	1,176	2,808	6,041	13,592
	34	349	554	1,015	2,424	5,215	11,733
	36	304	484	886	2,115	4,550	10,237
	38	268	426	780	1,864	4,009	9,019
	40	238	379	693	1,656	3,563	8,016
	42	213	339	621	1,484	3,192	7,182
	44	193	306	561	1,339	2,880	6,481
	46	175	278	509	1,216	2,617	5,888
	48	160	254	466	1,112	2,392	5,381
	50	147	234	428	1,022	2,198	4,946

NOTES:
C=Cover and Management Factor
P=Practice Factor

PPI Engineering

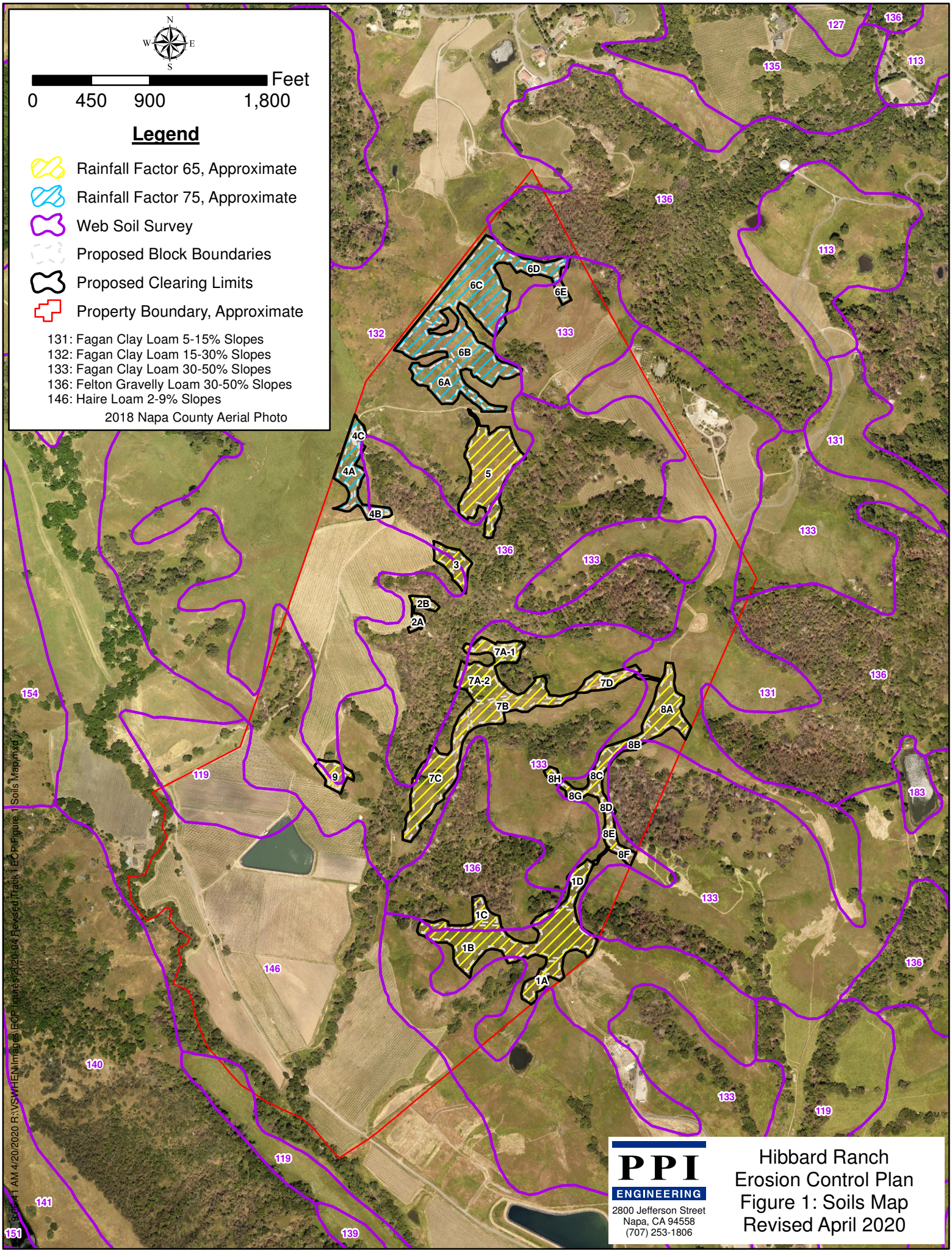
Napa County
Maximum Length of Slope
for a soil loss of 5 tons per acre

NAME: Hibbard Ranch DATE: 7/10/17

Cover Type: Permanent Cover Crop
Soil Unit No. (100-182)--- 136 -K= 0.15
Soil Name Felton -R= 75
-T= 3

Percent Cover		65% Semi-Benched	70% Semi-Benched	75% Semi-Benched	80% Semi-Benched	85% Semi-Benched	90% Semi-Benched
		C= 0.058 P= 0.5	C= 0.046 P= 0.5	C= 0.034 P= 0.5	C= 0.022 P= 0.5	C= 0.015 P= 0.5	C= 0.010 P= 0.5
PERCENT SLOPE	2	188,877,159	409,021,665	1,120,320,433	4,781,113,799	17,138,254,943	66,212,025,785
	4	910,476	1,625,339	3,460,519	10,275,001	26,767,662	73,763,003
	6	52,076	82,791	151,544	361,952	778,599	1,751,849
	8	23,981	38,124	69,784	166,675	358,535	806,705
	10	12,794	20,339	37,230	88,921	191,278	430,375
	12	7,742	12,309	22,530	53,812	115,756	260,451
	14	5,077	8,072	14,775	35,290	75,912	170,803
	16	3,533	5,616	10,280	24,554	52,817	118,839
	18	2,572	4,089	7,486	17,879	38,459	86,534
	20	1,942	3,087	5,651	13,498	29,036	65,331
	22	1,510	2,401	4,394	10,496	22,577	50,799
	24	1,203	1,913	3,502	8,364	17,992	40,481
	26	979	1,557	2,849	6,805	14,639	32,937
	28	811	1,289	2,360	5,637	12,125	27,282
	30	682	1,085	1,985	4,742	10,201	22,951
	32	582	925	1,693	4,044	8,699	19,573
	34	502	798	1,462	3,491	7,509	16,895
	36	438	697	1,275	3,046	6,552	14,742
	38	386	614	1,124	2,683	5,772	12,988
	40	343	546	999	2,385	5,130	11,544
	42	307	489	895	2,137	4,596	10,342
	44	277	441	807	1,928	4,148	9,333
	46	252	401	733	1,752	3,768	8,478
	48	230	366	670	1,601	3,444	7,749
	50	212	337	616	1,472	3,166	7,123

NOTES:
C=Cover and Management Factor
P=Practice Factor


N
W
E
S
Feet
0
450
900
1,800
Legend
Rainfall Factor 65, Approximate
Rainfall Factor 75, Approximate
Web Soil Survey
Proposed Block Boundaries
Proposed Clearing Limits
Property Boundary, Approximate
131: Fagan Clay Loam 5-15% Slopes
132: Fagan Clay Loam 15-30% Slopes
133: Fagan Clay Loam 30-50% Slopes
136: Felton Gravelly Loam 30-50% Slopes
146: Haire Loam 2-9% Slopes
2018 Napa County Aerial Photo
6D
6C
6E
6B
6A
4C
4A
4B
5
3
2B
2A
7A-1
7A-2
7D
7B
8A
8B
7C
8H
8C
8G
8D
8E
8F
9
1D
1C
1B
1A
PPI
ENGINEERING
2800 Jefferson Street
Napa, CA 94558
(707) 253-1806
Hibbard Ranch
Erosion Control Plan
Figure 1: Soils Map
Revised April 2020
G:\Jobs\1 AM 4/20/2020 R:\VSWHEN\Images\ECP Figures\2020.04 Revised Track 1 ECP\Figure 1 Soils Map.mxd

APPENDIX C

SLOPE CALCULATIONS

V. SATTUI WINERY INC.
HIBBARD RANCH

Average Slope Of Proposed Vineyard Blocks

Block	Gross Acres	Net Acres	Slope #1	Slope #2	Average slope
1A	1.1	0.6	15%	n/a	15%
1B	7.4	5.4	19%	20%	20%
1C	0.7	0.4	21%	n/a	21%
1D	0.9	0.4	17%	n/a	17%
2A	0.3	0.1	13%	n/a	13%
2B	0.4	0.1	25%	n/a	25%
3	1.3	0.7	26%	n/a	26%
4A	1.8	1.0	24%	25%	25%
4B	0.5	0.2	29%	n/a	29%
4C	0.3	0.1	16%	n/a	16%
5	5.4	4.0	18%	24%	21%
6A	2.8	1.7	24%	26%	25%
6B	4.8	3.3	24%	19%	22%
6C	5.8	4.3	25%	27%	26%
6D	1.3	0.6	13%	n/a	13%
6E	0.3	0.1	14%	n/a	14%
7A-1	1.3	0.6	18%	n/a	18%
7A-2	2.1	1.5	26%	n/a	26%
7B	2.7	1.7	24%	n/a	24%
7C	4.2	2.8	28%	19%	24%
7D	1.1	0.5	17%	n/a	17%
8A	2.3	1.5	19%	n/a	19%
8B	0.9	0.4	21%	n/a	21%
8C	0.9	0.4	6%	n/a	6%
8D	0.2	0.1	11%	n/a	11%
8E	0.5	0.2	4%	n/a	4%
8F	0.4	0.1	21%	n/a	21%
8G	0.3	0.1	17%	n/a	17%
8H	0.4	0.1	25%	n/a	25%
9	1.0	0.5	24%	n/a	24%
Roads	0.2				
Total	**53.6**	**33.5**			**19%**

APPENDIX D

ROAD PLAN

V. SATTUI WINERY INC.
HIBBARD RANCH

EROSION CONTROL PLAN

R O A D P L A N

SECTION 1 - INTRODUCTION

Road systems can be a significant but easily controlled source of sediment production and delivery to stream channels (Napolitano et. al. 2009). The recommendations contained within this Road Plan are consistent with recent road management plans prepared by the Napa County Resource Conservation District (RCD) and with guidance presented within the Mendocino County RCD's 'Forest and Ranch Roads Handbook' (Weaver, W.E., and Hagans, D.K. 2014).

The Hibbard Ranch contains an existing road network of gravel and dirt roads throughout the property at Assessor's Parcel Number (APN) 050-380-014. This plan addresses road improvements associated with the proposed new vineyard blocks requested in this Track I Erosion Control Plan (ECP). No new roads are proposed under this ECP.

The graveled roads that provide access from Henry Road to the existing barn and vineyard blocks are shown as "Gravel Roads" on Figure 2 of this ECP. These roads are in excellent condition and will continue to be maintained in their current state, and no changes or improvements are required as a result of this project. A network of existing dirt roads, shown on Figure 2 of this ECP, provides access throughout the property for maintenance of existing vineyard and grazing land uses. Section 2 below discusses proposed improvements and recommendations to ensure that the increased usage of these existing roads does not increase erosion or sedimentation to local waterways.

SECTION 2 - PROPOSED IMPROVEMENTS

2.1 PROPOSED ROLLING DIPS

Rolling dips are proposed as shown on Sheets 2 through 5 of the ECP where the existing road runs uphill and there is the potential for runoff to run down the road surface and cause erosion or gullying. The rolling dip serves to direct water off of the road surface and back onto native ground surface where vegetation will slow and disperse concentrated flow. The rolling dip and associated specifications are shown in Detail 3 on Sheet 7 of this ECP.

2.2 WATERBARS

Waterbars are currently used on the main road network in the locations shown in Figure 2. Waterbars function similar to rolling dips in that they direct water off of a road surface where it can slow and disperse concentrated flow. The waterbar and specifications are shown in Detail 4

on Sheet 7 of this ECP. Waterbars typically require annual installation prior to the rainy season (usually post-harvest to minimize traffic damage and maintenance).

2.3 DECOMMISSIONED ROADS

Portions of existing roads will be decommissioned by incorporating them into vineyard blocks. In those locations, the access roads will be realigned to the outer vineyard avenue. When the decommissioned road becomes part of the vineyard block it will be required to maintain the same percentage of vegetative cover as the surrounding vineyard.

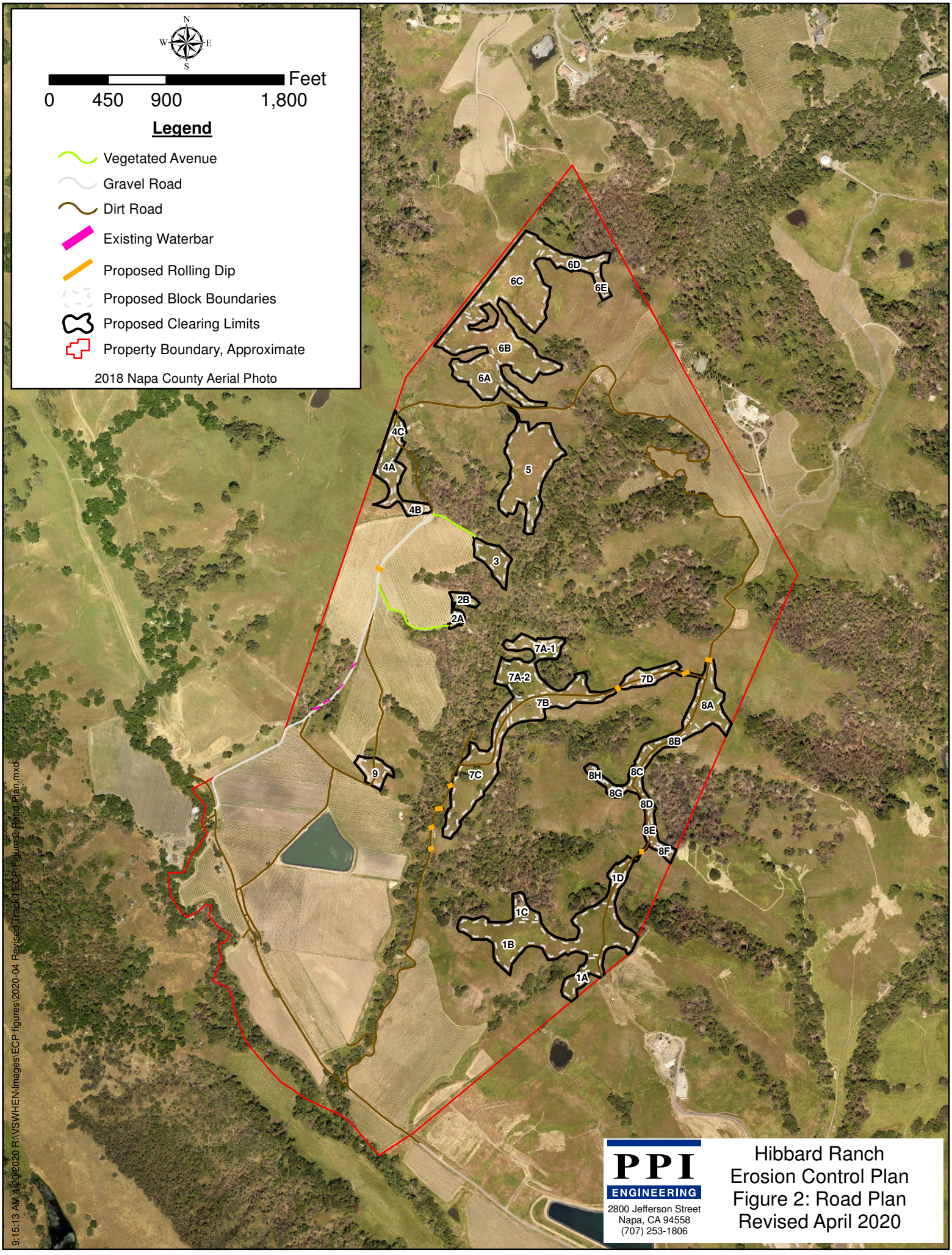
SECTION 3 - CONCLUSIONS

Road-related sediment can be prevented from entering the stream system through a variety of best management practices and erosion prevention treatments that generally involve dispersing road runoff and disconnecting road surface and ditch drainage. The proposed improvements in this Road Plan are consistent with guidance from the Napa County RCD and the Handbook for Forest and Ranch Roads and will ensure that the existing road network will be upgraded as necessary to minimize potential for erosion and sediment delivery to local drainages.

SECTION 4 - REFERENCES

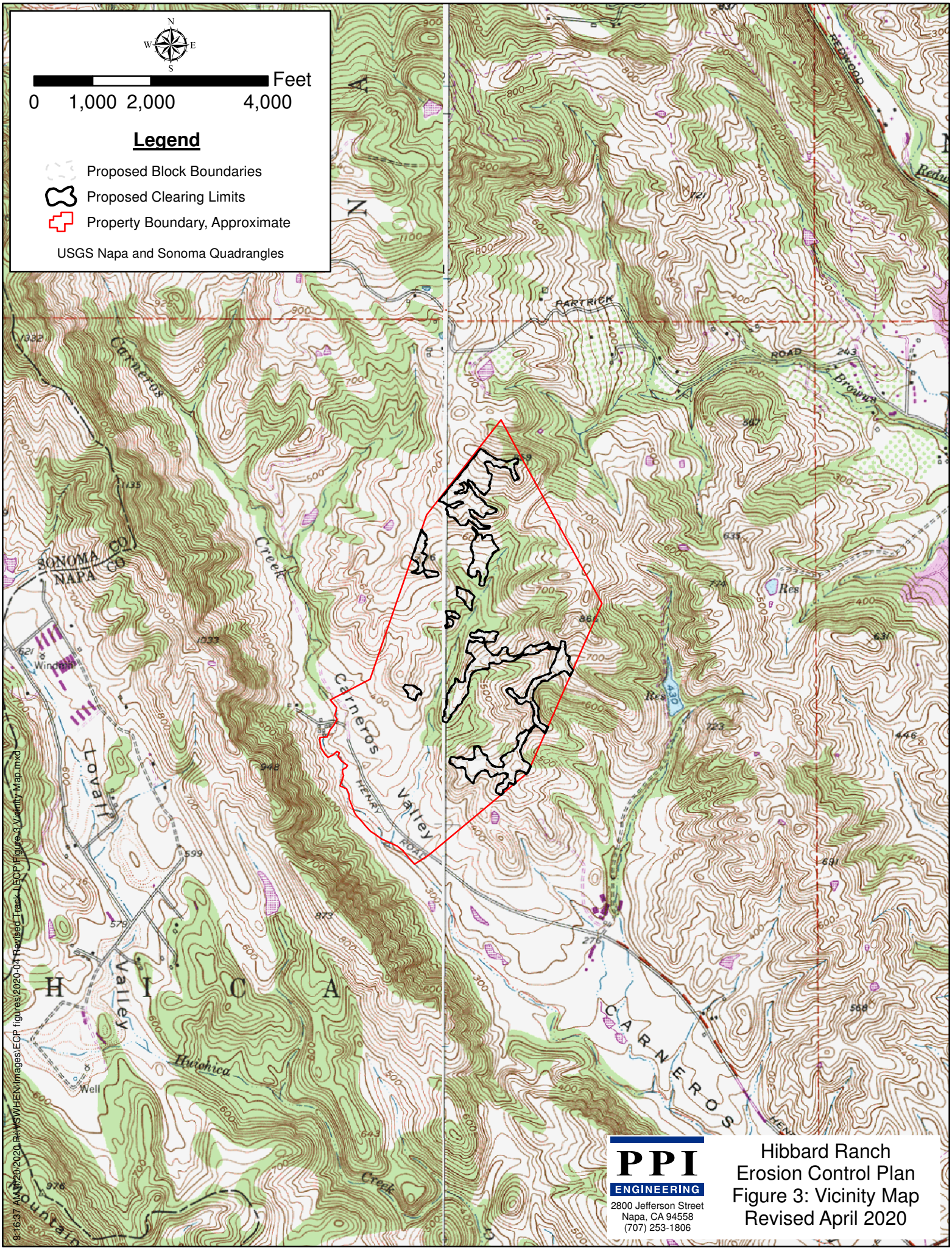
Napolitano, Potter, Whyte 2009. *Napa River Sediment TMDL and Habitat Enhancement Plan.* California Regional Water Quality Control Board, San Francisco Bay Region.

Weaver, W.E., and Hagans, D.K., 2014, *Handbook for Forest and Ranch Roads*: A Guide for Planning, Designing, Constructing, Reconstructing, Maintaining and Closing Wildland Roads: Ukiah, CA, Mendocino County Resource Conservation District.


N
W
E
S
Feet
0
450
900
1,800
Legend
Vegetated Avenue
Gravel Road
Dirt Road
Existing Waterbar
Proposed Rolling Dip
Proposed Block Boundaries
Proposed Clearing Limits
Property Boundary, Approximate
2018 Napa County Aerial Photo
6C
6D
6E
6B
6A
4C
4A
4B
5
3
2B
2A
7A-1
7A-2
7D
7B
8A
8B
9
7C
8H
8C
8G
8D
8E
8F
1D
1C
1B
1A
9:15:13 AM 4/20/2020 R:\VSWHEN\Images\ECP figures\2020-04 Revised Track I ECP Figure 2 Road Plan.mxd
PPI
ENGINEERING
2800 Jefferson Street
Napa, CA 94558
(707) 253-1806
Hibbard Ranch
Erosion Control Plan
Figure 2: Road Plan
Revised April 2020

APPENDIX E

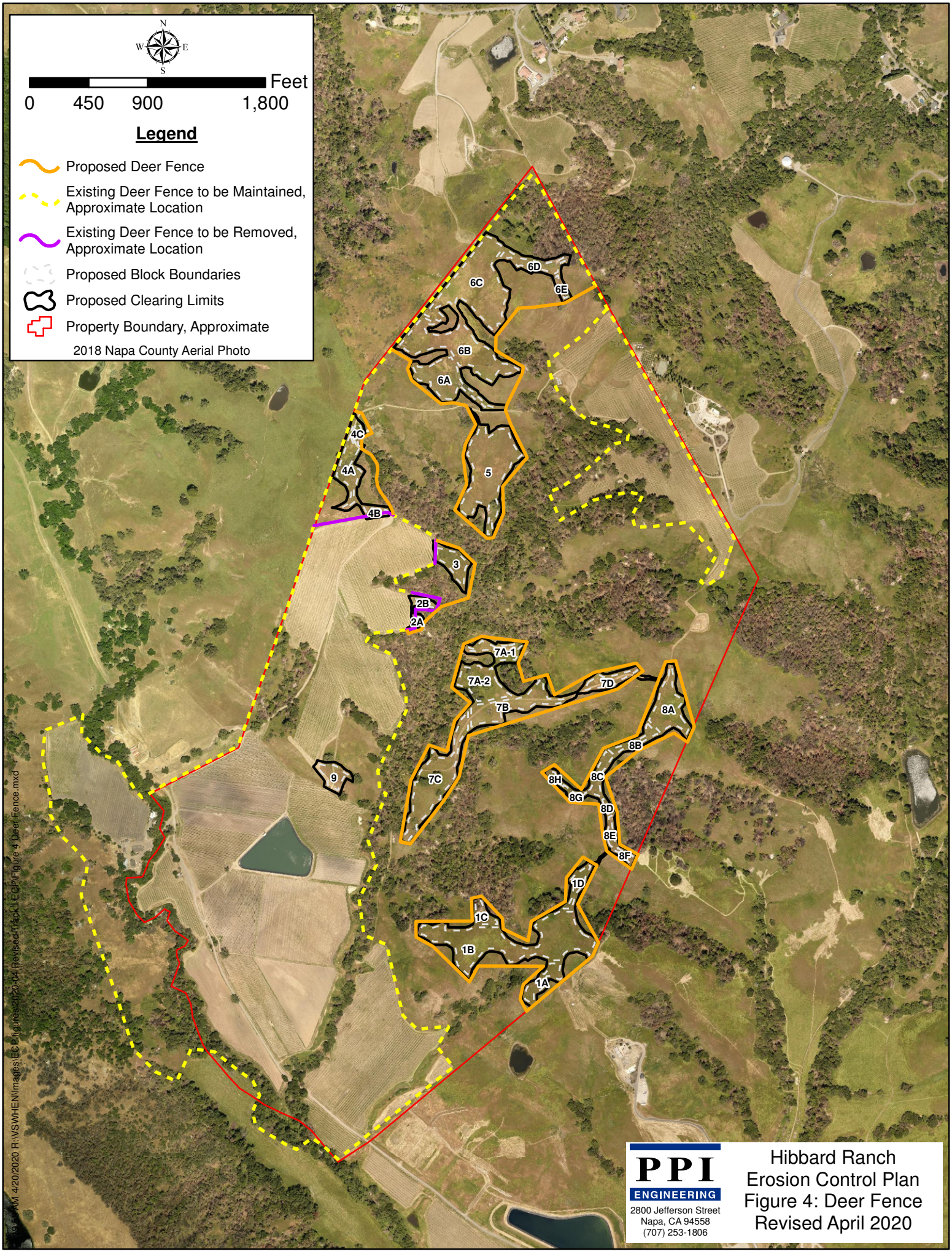
SUPPORTING FIGURES

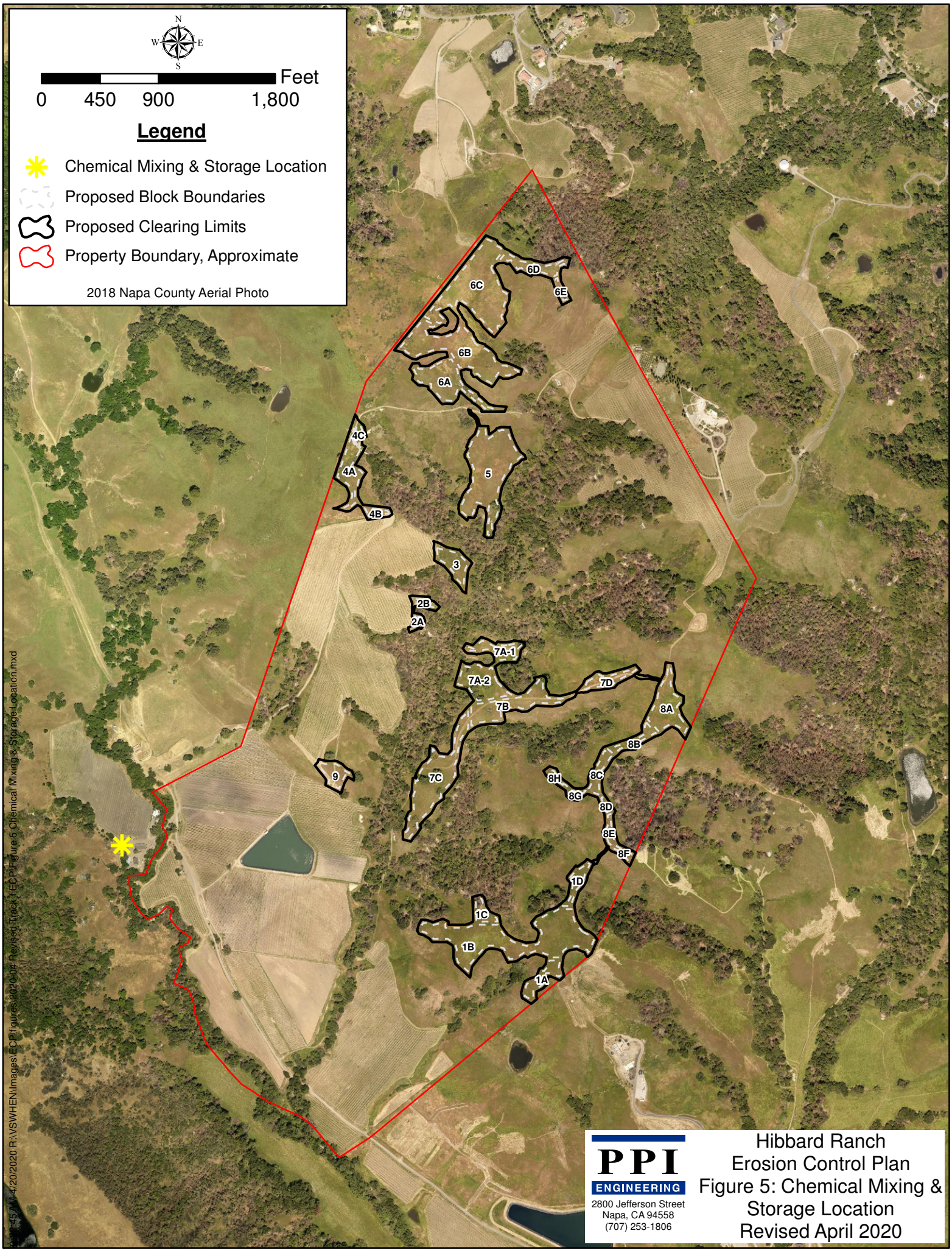


PPI ENGINEERING
2800 Jefferson Street
Napa, CA 94558
(707) 253-1806

Hibbard Ranch
Erosion Control Plan
Figure 3: Vicinity Map
Revised April 2020

9:16:37 AM 4/20/2020 P:\WSWHEN\images\EOP figures\2020-04 Revised Track - EOP\Figure 3 Vicinity Map.mxd


N
W
E
S
Feet
0
450
900
1,800
Legend
Proposed Deer Fence
Existing Deer Fence to be Maintained, Approximate Location
Existing Deer Fence to be Removed, Approximate Location
Proposed Block Boundaries
Proposed Clearing Limits
Property Boundary, Approximate
2018 Napa County Aerial Photo
6C
6D
6E
6B
6A
4C
4A
5
4B
3
2B
2A
7A-1
7A-2
7D
7B
8A
8B
9
7C
8H
8C
8G
8D
8E
8F
1D
1C
1B
1A
10:19 AM 4/20/2020 R:\VSWHEN\Images\EC Figures\2020-04 Revised Track\ECP Figure 4 Deer Fence.mxd
PPI
ENGINEERING
2800 Jefferson Street
Napa, CA 94558
(707) 253-1806
Hibbard Ranch
Erosion Control Plan
Figure 4: Deer Fence
Revised April 2020



PPI ENGINEERING
2800 Jefferson Street
Napa, CA 94558
(707) 253-1806

Hibbard Ranch
Erosion Control Plan
Figure 5: Chemical Mixing & Storage Location
Revised April 2020

N
W E
S

Feet

0 250 500 1,000

Legend

- Existing Irrigation Mainlines, Approximate Location
- Proposed Irrigation Line, Approximate Location
- Napa County Stream Setback
- 26' Undisturbed Filter Strip
- Proposed Block Boundaries
- Proposed Clearing Limits
- Property Boundary, Approximate

2018 Napa County Aerial Photo

Notes:

1) All proposed underground irrigation lines shall be located outside of stream setbacks.

2) Blocks 2A, 2B, & 3 will not require new large diameter irrigation lines as they will connect to existing submains in the adjacent vineyard.

6D
6C
6E
6B
6A
4C
4A
5
4B
3
2B
2A
7A-1
7A-2
7D
7B
8A
8B
9
7C
8H
8C
8G
8D
8E
8F
1D
1C
1B
1A

9:27:10 AM 4/20/2020 R:\SWHEN\Images\EOP figures\2020-04 Revised Track I EOP\Figure 6 Irrigation Mainlines.mxd

PPI ENGINEERING
2800 Jefferson Street
Napa, CA 94558
(707) 253-1806

Hibbard Ranch
Erosion Control Plan
Figure 6: Irrigation Mainlines
Revised April 2020

APPENDIX F

GEOTECHNICAL REPORT

Gilpin Geosciences, Inc
Earthquake & Engineering Geology

January 24, 2020
91650.01

Annalee Sanborn
PPI Engineering, Inc.
2800 Jefferson Street
Napa, California 94558

SUBJECT: REVISED
Landslide Investigation: Response to Comments
V. Sattui Hibbard Ranch Vineyard,
Henry Road
Napa, California

Dear Ms. Sanborn:

We are pleased to present the results of our supplemental Landslide Investigation: Response to Comments. The proposed vineyard development is presented by PPI Engineering Inc. in their "V. Sattui Winery Inc. Hibbard Ranch Erosion Control Plan" dated January 2019.

The County of Napa has provided comments to the proposed vineyard development in two communications:

- Memorandum Re: P19-00069 – V. Sattui Hibbard Ranch Completeness Comments Rev. 1 APN: --5-380-014: County of Napa Planning, Building & Environmental Services, 2 p., dated 5/14/19.
- Application Completeness Determination – V. Sattui Hibbard Ranch Vineyard Conversion Agricultural Erosion Control Plan (ECPA) File # P19-00069-ECPA Terminus of Henry Road: APN 050-380-014; Napa County Planning Building & Environmental Services, 3 p., dated 5/21/19.

The site is located on Henry Road southwest of the incorporated City of Napa, as shown on Figure 1. The proposed development involves installation of 9 vineyard blocks across the upland areas of the ridges overlooking the Carneros Valley. The site consists of approximately 425 acres. Unimproved dirt roads and tracks access the site. Numerous structures are located on the west side of Henry Road that serve as storage and working facilities for the farming operation.

In this letter report we present supplemental subsurface exploration and recommendations for landslide mitigation based on recent field exploration and a geologic reconnaissance, and respond to the County comments.

SCOPE OF SERVICES

The purpose of this investigation was to respond to comments from the County of Napa regarding slope stability issues and to analyze potential landslide mitigation alternatives. In order to accomplish this, we performed the following tasks:

- selected limited site geologic reconnaissance;
- review aerial photographs;
- log 5 test borings at selected landslide sites drilled by Taber Drilling on 18 & 19 July 2019;
- compile the geologic data and performed analyses in order to recommend landslide mitigation; and
- prepare this report.

SITE CONDITIONS

We evaluated selected sites by performing subsurface exploration and geologic reconnaissance to better define the slope stability hazards to the proposed vineyard development, and to address comments from the County. We presented the site-specific and vicinity geology and seismicity in our previous report (Gilpin Geosciences, 2019) and refer you to that for further background information.

For this investigation, we focused on 5 areas of slope stability concern, as follows:

1. landslide failure of access road below Block 4A
2. landslide in Block 5
3. landslides in Block 6C
4. deep erosion gullying in Block 7A
5. landsliding in Block 9

We also discuss the impact of landslides mapped near Block 1 and Block 8 in the following section.

SITE GEOLOGY

We have characterized the landslides by their activity. Active landslides are mapped based on the sharpness of the surface features associated with the deposit. Well-defined and sharp features such as open cracks in the head scarp area, bulging and ground-cracked toe areas and bulging ground surface areas, and "mole tracks" marking the lateral margins of the active slide. Whereas surface features associated with dormant or inactive landslides are marked by rounded to very subtle head scarp areas, a lack of fresh scarps and subdued toe areas. Lateral margins of dormant landslides do not have fresh scarps and "mole tracks" composed of loose soil.

Landslide Block 1A/1C
We mapped a 5- to 10-foot-deep earth flow landslide on the northern flank of the ridge crest (Figure 2) on which vineyard Block 1A and 1C are proposed. This slide has developed in a narrow swale drainage that lies between the two blocks. The proposed ridge crest vineyard blocks should be setback from future potential encroachment by this landslide.

Two additional landslides are mapped northwest of vineyard Block 1D; however, we believe these earthflow landslides are located downslope of the proposed vineyard boundary and beyond any zone of potential impact to the vineyard.

Road Landslide below Block 4A
We mapped a landslide that failed in an existing access road that traverses the hillside below and east of Block 4A. The Site Geologic Map, Figure 3A, shows the location and approximate dimensions of the landslide that occurred during the winter storms of 2018-19, and Figure 3B shows a cross section with a subsurface geologic interpretation. The landslide is a slump of the shallow bedrock and incorporating the fill placed to construct the roadway. The slide is approximately 45 to 50 feet wide and extends from a head scarp just above the roadway to just below the fill placed for the road construction. We drilled boring B-1 in the roadway. We describe the subsurface conditions in the next section and the log of the boring is included in the Appendix.

Landslide Block 5
We mapped a translational landslide that encroaches on Block 5, as shown on Figure 4A. We estimate the landslide to be approximately 20 feet deep as shown on the cross section presented on Figure 4C. In nearby test pit TP-6 (Gilpin Geoscience, 2019), we encountered siltstone bedrock at a depth of 4.5 feet BGS.

Landslides Block 6C
Vineyard Block 6C lies on a prominent southwest-facing slope with relief of 80 to 100 vertical feet. We have identified 3 landslides in the Block, one of which was shown in original engineering geologic report (Gilpin Geosciences, Inc. 2019). Based on additional field reconnaissance and aerial photograph review, we identified two more landslides, one of which we designate dormant.

Active landslides
We mapped a moderate-size slump landslide (Qls 1351) emanating from the steep ridge at the top of the Block that is approximately 80 feet wide and extends up to 270 feet into the proposed vineyard block (Figure 4A). We estimate the depth of this landslide to be up to 30 feet deep BGS, as shown on the cross section presented on Figure 4B.

A second active debris landslide (Qls 1121) was identified at the far northwestern corner of the block that is estimated at approximately 5 to 10 feet deep. Test Pits

TP-4 and TP-5 in the area encountered old alluvium at a depth of 2.5-3.5 feet BGS underlain by siltstone/sandstone bedrock at 3.75-7 feet BGS (Gilpin Geosciences, Inc, 2019).

Dormant Landslide

We mapped a dormant debris landslide (Qls 2121; Figure 4A) at the easternmost part of Block 6C based on review of infrared aerial photography. The deposit is subdued and poorly defined except in the lower courses of the swale drainage in which it is situated. The slide is approximately 60 to 90 feet wide in the proposed vineyard Block and we estimate it to be approximately 15 to 20 feet deep as shown on the cross section presented on Figure 4B.

Erosion Gully Block 7A

We performed site geologic reconnaissance (Figure 5A) and PPI Engineering surveyed a cross section of the erosion gully (Figure 5B) at the lower elevation of Block 7A. The gully is eroded into an uplifted alluvial terrace deposit and drops approximately 30 feet over a length of approximately 120 feet. We show an average top of channel bank with respect to the channel thalweg on the cross section (Figure 5B). The gully has obviously been a hazard in the past as it currently is locally backfilled with concrete pipe and other solid debris in an attempt to arrest its growth.

Landslides Block 8

Landslides mapped near Block 8 are shown on Figure 2. We also mapped a hillslope that is subject to soil creep on the western flank of the ridgecrest. Vineyard Block 8 is located along the crest of a prominent, roughly north-south trending ridgeline. Three 5- to 10-foot-deep earthflow landslides are mapped on the northwest-facing slope below the northern end of the Block. The two southerly slides appear to be slightly closer than 50 feet horizontal to the local Block boundary. The block boundary should be adjusted to maintain a minimum 50-foot setback from the head scarps of the two landslides.

Landslide Block 9

Block 9 is located at the southwestern corner of the proposed vineyard improvements and is located on a moderately inclined southwest-facing slope above the prominent southwest drainage that cuts the site. Two irregular tributary drainages cut the proposed vineyard block and characterize the hummocky and irregular drainage on this slope. We mapped a large translational landslide roughly bounded by these two drainages (Figure 6A). We explored the landslide by drilling 4 test borings described in the next section. We estimate the depth of this landslide to be 15 to 26 feet BGS based on the test borings and the cross section shown on Figure 6B.

SUBSURFACE CONDITIONS

We explored the site by drilling 5 test borings at the landslides below Block 4A and on Block 9 at locations shown on Figure 3A & 6A. The test borings encountered fill, colluvium[1], landslide deposits, sandstone, and shale. The logs of test borings are attached in Appendix, Figures A-1 through A-5. We classified the materials encountered according to the Soil Classification Chart and Physical Properties Criteria for Rock Descriptions, shown in Figures A-6 and A-7, respectively. We have compiled the geologic data on the Site Plan and Geologic Map (Figures 3A & 6A) and present our interpretation of subsurface conditions on the Geologic Cross Sections shown on Figures 3B & 6B.

Boring B-1 was drilled in the road below vineyard Block 4A where a landslide slump had occurred during the storms that occurred last winter. We encountered silty to sandy clay and clayey gravel landslide material to a depth of 14 feet below the road surface. The landslide materials were very soft to soft/very loose and moist to wet. We encountered siltstone bedrock below the landslide to the full depth explored 26.5 feet below the road surface. The siltstone is weak to friable locally, of low hardness, and moderately weathered.

Borings B-2 through B-5 were drilled in the landslide mapped on vineyard Block 9. We encountered silty to sandy clay and clayey gravel landslide materials to a depth of up to 29.5 feet BGS at the boring B-1 location. The soils encountered are soft to medium stiff/loose and are moist to wet. We encountered a soft and wet landslide slip plane in boring B-2 at a depth of 25 feet BGS. In boring B-4 we encountered silty clay with gravel residual soil that was stiff to very stiff layered between the landslide materials and underlying bedrock.

Siltstone bedrock was encountered below the landslide materials in all the borings on Block 9. We classified the siltstone as friable to weak with low hardness and moderate weathering. We encountered sandstone bedrock underlying the siltstone in boring B-4 at a depth of 26 feet below ground surface (BGS). The sandstone was friable to weak, of low hardness and deeply to completely weathered.

CONCLUSIONS AND RECOMMENDATIONS

The proposed vineyard development is feasible from the standpoint of erosion control and slope stability. However, active and dormant landslides mapped on the site lie adjacent to and, in some cases, within the proposed vineyard areas. Recommendations for setbacks, as well as slope reconstruction guidelines, are presented below in the event the project team wishes to repair the unstable areas for the proposed vineyard development. Typically, the vineyard blocks are located at the top of the gently rounded ridge lines or along the toe of the slopes

[1] Colluvium – a deposit caused by the gravitational accumulation of soil, weathered rock, and organic matter on a hillslope.

where the benches define the drainage channel limits. Both areas are prone to encroachment by slope creep and landslide movement.

Vineyard development proposed for high relief properties contain areas of potential slope instability. In general, vineyard development reduces the amount of sediment delivered to local streams in these high relief areas. Vineyard development allows better control of surface runoff away from erosion-prone hillsides and unstable landslide-blanketed slopes. Likewise, controlling surface runoff reduces the activity of landslides and, thus, reduces the sediment loads to nearby streams and their deleterious effects on the local aquatic resources. Therefore, in our opinion, the proposed vineyard development will reduce the sediment delivered to the on site and downstream areas as a result of the drainage design and erosion mitigation aspects of the ECP.

Irrigation of the vines can cause added infiltration during summer seasons; however, with our recommended setbacks and the absence of high-intensity and long-duration precipitation that occurs during the winter, we believe any summer-time infiltration increase will have little effect.

Excessive watering of the vineyard blocks can lead to accelerated soil creep and landslide movement. Surface runoff should be strictly controlled near landslides to direct the flow away from the unstable mass. Saturation of the toes of landslides, active or dormant, can trigger localized slope failures because of the nature of the underlying weak material.

We recommend a setback, or staging area, along block boundaries that are adjacent to steep landslides or downslope of the toe of landslides. The setbacks are recommended below.

We recommend ripping no deeper than 24 inches in areas of slope stability concern addressed in this report.

Proper maintenance of the surface water drainage facilities and periodic monitoring and immediate attention to eroded areas will minimize the impact of the landslides and erosion gullies to the vineyard blocks.

SOIL CREEP SETBACK/MITIGATION

Soil creep is mapped in several locations across the site and, in some locations, it encroaches on the proposed vineyard blocks. Typically, we map soil creep as incorporating the upper approximately 3 feet of soil and encompassing a well-defined area of the slope on which it is mapped. If left unmitigated, the creep will continue and could result in damage to any new vineyard development. Since shallow groundwater and steep slopes are often the cause of localized soil creep, subdrains are an effective tool for mitigation. We recommend either

setting back vineyards approximately 25 feet from the identified soil creep, or installing a subdrain at or near its upslope limits.

EROSION GULLY REPAIR BLOCK 7A

A conceptual repair for the erosion gully on Block 7A is shown on the Cross-Section P-P' Block 7A, Figure 5B. To repair the erosion gully and to mitigate the future impact of concentrated runoff into the gully, we propose that a subdrain be constructed along with regrading of the gully channel. The Cross-Section on Figure 5B shows the drainage improvements along with a list of the construction sequence:

1. Rough grade channel to fit shown piping.
2. Place 18-inch-diameter pipe with 40 feet of perforated pipe at the upper end, wrapped in 140N Mirafi filter fabric.
3. Excavate a basin at the proposed pipeline and backfill with Class II permeable material.
4. Grade back existing oversteepened gully banks to cover pipe and restore natural ground surface, as fill material allows.

LANDSLIDE MITIGATION

Mapped landslides that impact the proposed vineyard development are addressed in this investigation. In this section we present alternative mitigation of the slope stability issues at the site. We characterize the landslide hazards and present both setback and permanent repair alternatives below.

Engineered Buttress Fill Placement

We recommend a keyway be excavated a minimum of 2 feet into competent bedrock or stable alluvium as determined by the project geologist or field engineer. The keyway should be a minimum 14 feet wide unless otherwise specified. Figure 7 shows the schematic details of the earth buttress and keyway section.

After keyway preparation is complete, and the subdrain should be installed along the upslope side of the excavation and the fill should be placed in horizontal lifts not exceeding 8 inches in loose thickness, moisture-conditioned to above optimum moisture content, and compacted to at least 90 percent relative compaction. Each layer of fill should be compacted using a sheepsfoot compactor in a uniform and systematic manner. Compaction should be conducted parallel to the axis of the buttress whenever possible. The fill slope should be constructed in layers such that the surface of each layer is nearly level. If in the opinion of the project geologist or field engineer, the contact surface of the fill layer is too dry or smooth to permit suitable bonding of the surface and subsequent fill layers, it may be necessary to moisture condition, scarify, and recompact the surface prior to placement of succeeding layers of fill materials.

The excavated on-site soil is suitable for re-use as earth buttress fill provided it is free of organic material, debris, and particles larger than six inches in greatest dimension. If the excavated material is too wet to compact to the required compaction, it should be spread out and aerated to lower its moisture content.

Stitch-pier Wall Alternative for Road belowBlock 4A

We present two mitigation alternatives for the road repair below Block 4A, depending on your needs. The two alternatives are:

1. Install a row of closely spaced drilled piers to act as a stitch-pier wall, to be presented as a design-build package for an independent contractor;
2. Excavate fill and soil to bedrock to construct a drained keyway and reconstruct the slope with an engineered fill slope (discussed above);

Stitch-pier Wall
Pier holes with a diameter of at least 18 inches should be drilled at three pier diameters, on center, along the downslope edge of the affected roadway. The piers should extend a minimum of 10 feet into the siltsone bedrock encountered during our subsurface exploration. Steel cages or beams should be placed in the pier holes and backfilled with structural concrete with a minimum 28-day compressive strength of 2,500 pounds per square inch (psi). The pier holes should be clean and free of any water prior to placement of concrete.

Subdrains
Subdrains should be installed in areas of soil creep and landslide repair that have excessive seepage. The keyway is designed to capture and drain significant groundwater at and below the bedrock/soil interface; however, parts of the landslide that are not proposed to be rebuilt with engineered earth buttress may require installation of a subdrain to control the impact of excessive groundwater accumulation.

The subdrain should consist of a four-inch-diameter, perforated (perforations down), SDR 35 PVC pipe (Figure 8). The SDR 35 pipe could be replaced with ADS N-12 as long as the joints are securely taped. The perforated pipe should be covered by 3/4-inch drain rock or Class 2 permeable material wrapped in filter fabric (Mirafi 140NC or equivalent). The subdrain pipe should be sloped to drain at a minimum gradient of one percent to a four-inch-diameter, solid PVC pipe with water-tight connections to transport groundwater to a suitable discharge area. Cleanouts should be provided for each length of pipe that has a bend sharper than 45 degrees and at approximately 200-foot intervals for straight pipe.

RECOMMENDED SETBACKS FROM MAPPED LANDSLIDES

In the event landslide repair is not chosen, we recommend that the vineyard development be limited to areas beyond any impact from the mapped landslides. To accommodate this we present our recommended setbacks in a table below.

TABLE 1: Landslide Setback Inventory

Vineyard Block	Landslide Designation	Minimum Setback
Block 1A/C	Active earth flow;; 5-10 ft deep	25 ft lateral; 50 ft toe/headscarp
Block 4C	Dormant; debris slide; 15-20 ft deep	35 ft lateral
Block 5	Active; translational; 15-20 ft deep	25 ft lateral; 50 ft toe
Block 6	Active; slump; 20+ ft deep;	25 ft lateral; 50 ft toe
Block 6	Active ; debris slide; 5- 10 ft deep;	25 ft lateral; 50 ft headscarp and toe
Block 6	Dormant; debris slide; 15- 20 ft deep;	25 ft lateral; 50 ft headscarp and toe
Block 7B	Active; earth flow; 10–15 ft deep;	25 ft lateral; 50 ft headscarp and toe
Block 7D	Active; debris slide; 10–15 ft deep;	25 ft lateral; 50 ft headscarp and toe
Block 8	Active; earth flows; 0-5 ft deep	25 ft lateral; 25 ft headscarp and toe
Block 8	Active debris slide; 5-10 ft deep	25 ft lateral; 50 ft headscarp and toe
Block 9	Active; translational; 15-30 ft deep	25 ft lateral; 50 ft headscarp and toe

GEOTECHNICAL/GEOLOGICAL SERVICES DURING CONSTRUCTION

During implementation of the above recommendations, we should perform the following services:

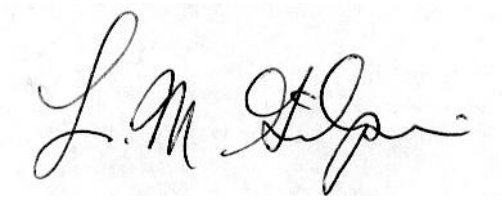
- Observe stripping of vegetation and organic soil to confirm suitable soil is exposed;
- Observe the excavated soil to confirm it is suitable for use as engineered fill;
- Observe the keyway excavations and subdrain installation;
- Observe subgrade preparation, placement of fill, and perform field density tests to check the recommended compaction has been achieved;
- Observe any retaining wall foundation excavation, geo-grid placement, backfill suitability, and compaction

LIMITATIONS

Our services have been performed in accordance with generally accepted principles and practices of the geological profession. This warranty is in lieu of all other warranties, either expressed or implied. In addition, the conclusions and recommendations presented in this report are professional opinions based on the indicated project criteria and data described in this report. They are intended only for the purpose, site location and project indicated.

We trust that this provides you with the information you need. If you have any questions, please call.

GILPIN GEOSCIENCES, INC.



Lou M. Gilpin, Ph.D.
Engineering Geologist

ROCKRIDGE GEOTECHNICAL, INC.

Craig S. Shields
Geotechnical Engineer

Attachments: **References**

Figures:

Figure 1 Site Location
Figure 2 Site Geologic Map Blocks 1 & 8
Figure 3A Site Geologic Map Blocks 4A & 4C
Figure 3B Geologic Cross Section C-C′: Block 4A
Figure 4A Site Geologic Map Blocks 5 & 6C
Figure 4B Cross Sections L-L′ & O-O′: Blocks 5 & 6C
Figure 4C Cross Sections N-N′ & M-M′: Blocks 5 & 6C
Figure 5A Site Geologic Map Block 7A
Figure 5B Cross Sections L-L′: Block 7
Figure 6A Site Geologic Map 9
Figure 6B Cross Section I-I′: Block 9
Figure 7 Schematic Earth Buttress and Keyway Section
Figure 8 Subdrain Typical Detail

Appendix:

Figures A1 – A5 Logs of Test Borings
Figure A6 Soil Classification
Figure A7 Physical Criteria for Rock Description

REFERENCES

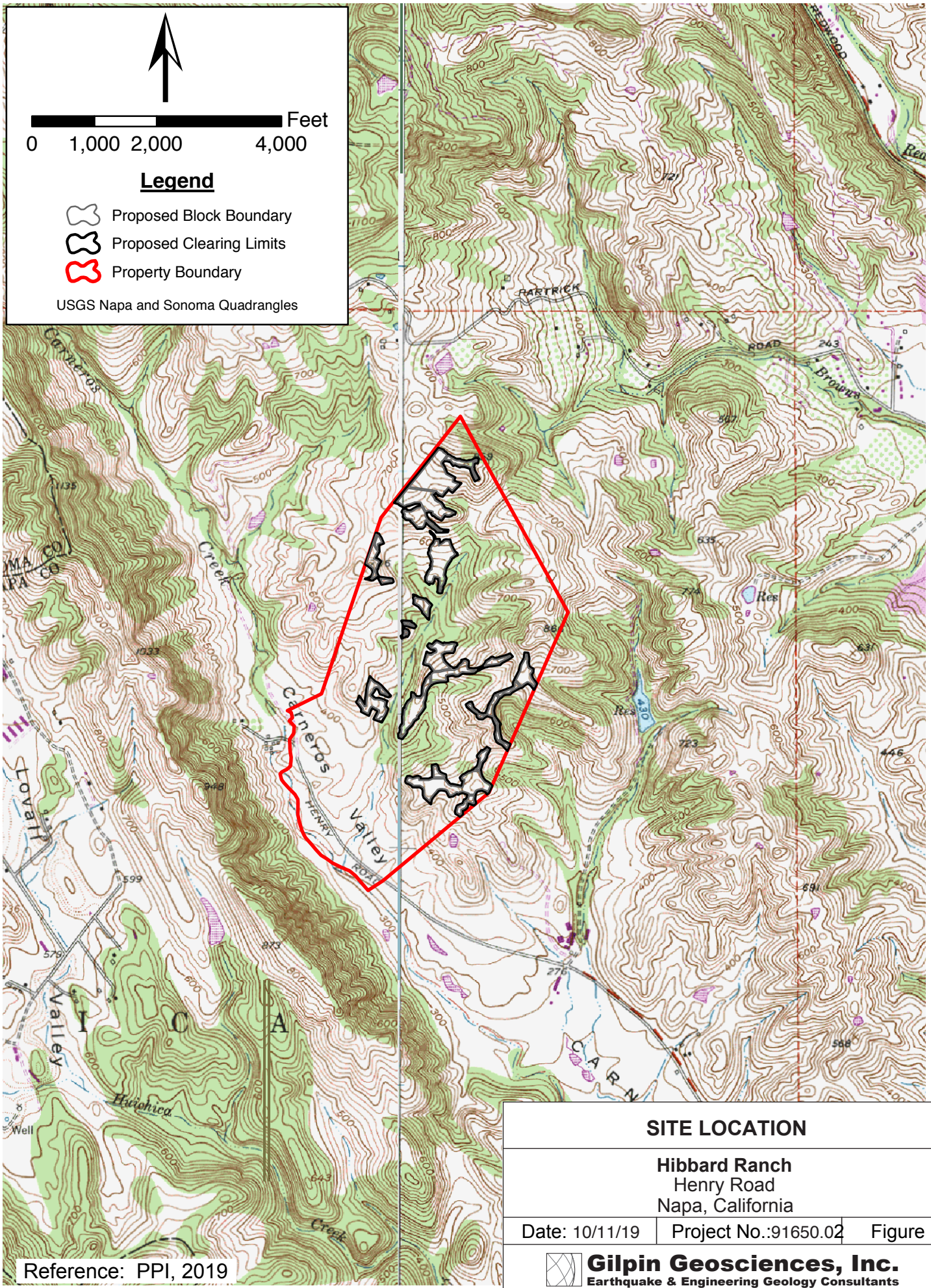
Gilpin Geosciences, Inc., 2019, Engineering Geological Investigation Hibbard Vineyard Henry Road Napa, California: prepared for PPI Engineering, Inc., 41 p., 5 Figures, Appendix, dated 3/7/19.

PPI Engineering, Inc., 2019, V. Sattui Winery Inc. Hibbard Ranch Erosion Control Plan: 58 p., 8 sheets, scale 1"= 100', dated January 2019

Aerial Photographs

Date	Photo Number	Scale	Source
11/2/00	CIR-6745-3-19,20,21	1:12,000	PAS
9/1/98	CIR 4900-3-7, 8, 9	1:12,000	PAS
10/8/91	AV 4070-19-20,21	1:12,000	PAS

FIGURES

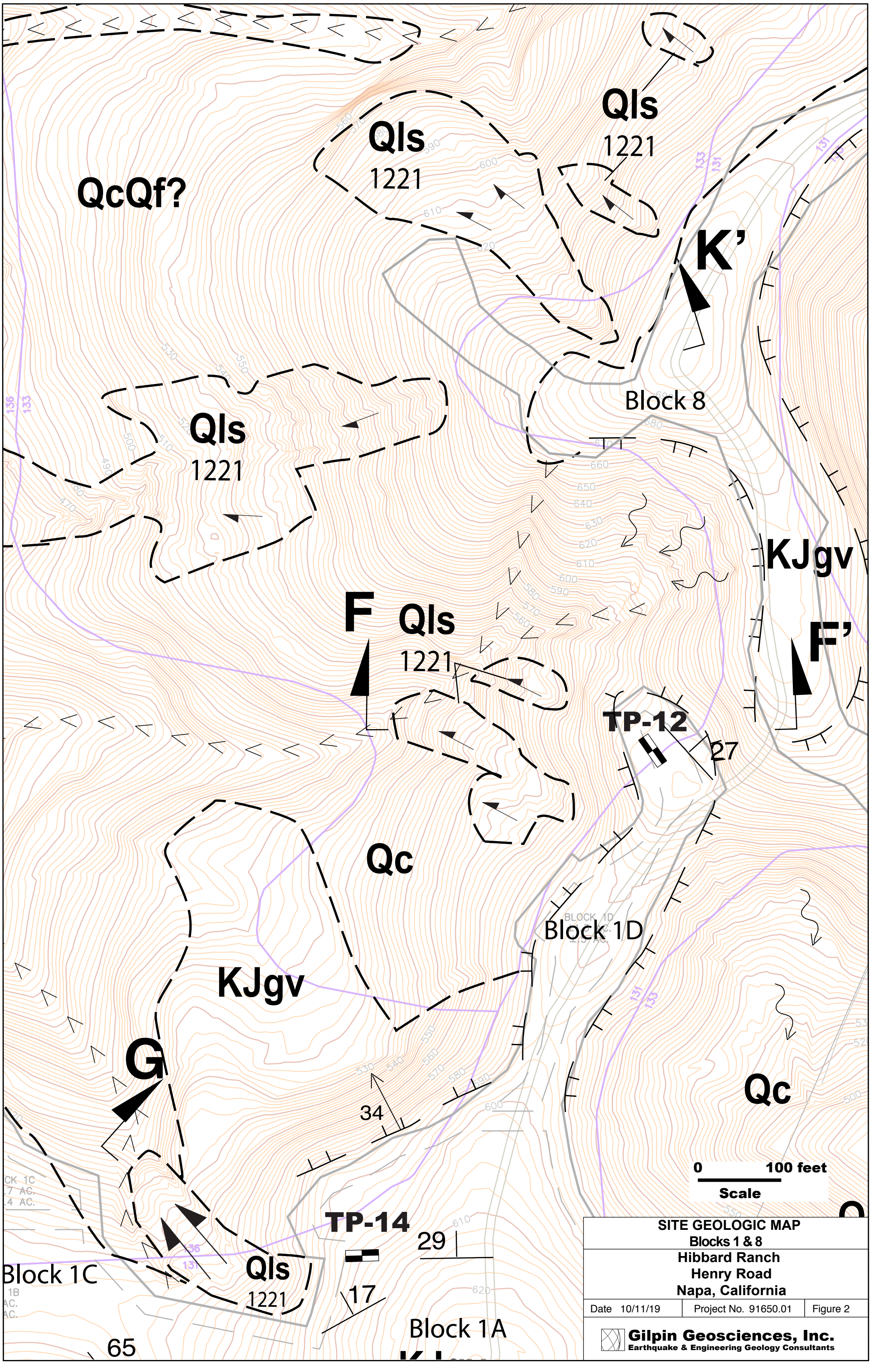


SITE LOCATION

Hibbard Ranch
Henry Road
Napa, California

Date: 10/11/19	Project No.:91650.02	Figure 1

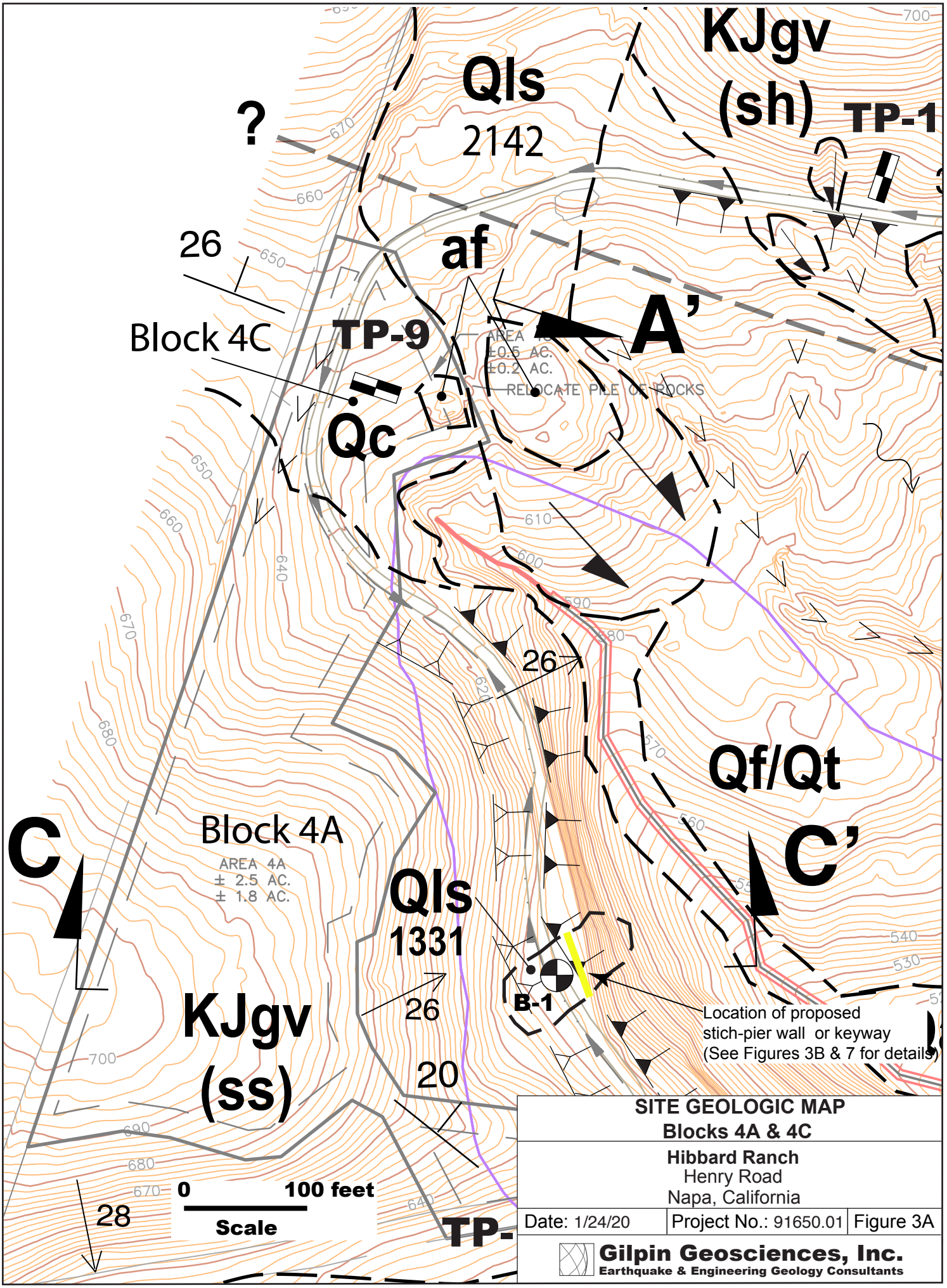
Gilpin Geosciences, Inc.
Earthquake & Engineering Geology Consultants



SITE GEOLOGIC MAP
Blocks 1 & 8
Hibbard Ranch
Henry Road
Napa, California

Date 10/11/19	Project No. 91650.01	Figure 2

Gilpin Geosciences, Inc.
Earthquake & Engineering Geology Consultants

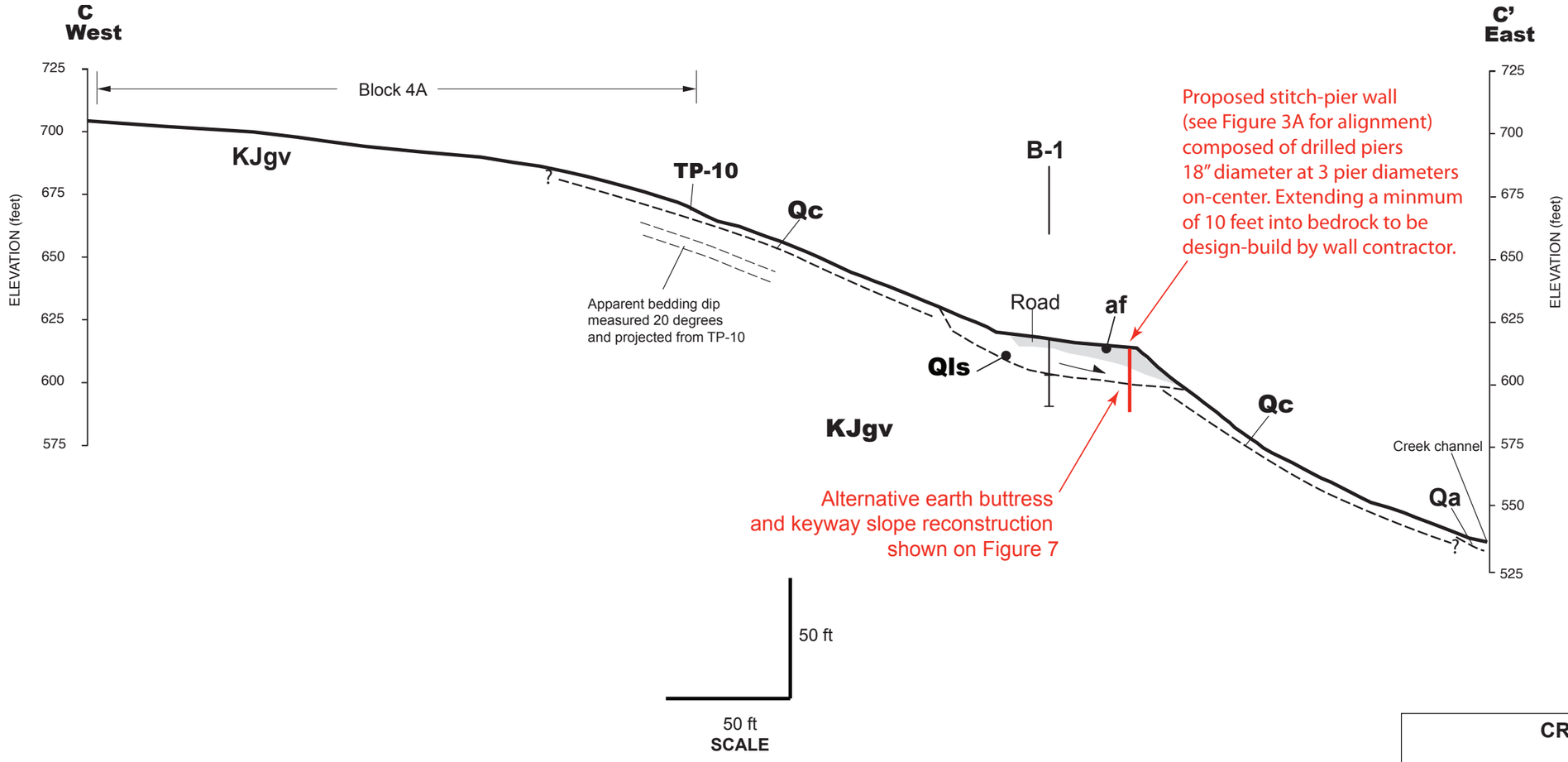


SITE GEOLOGIC MAP
Blocks 4A & 4C

Hibbard Ranch
Henry Road
Napa, California

Date: 1/24/20	Project No.: 91650.01	Figure 3A

Gilpin Geosciences, Inc.
Earthquake & Engineering Geology Consultants

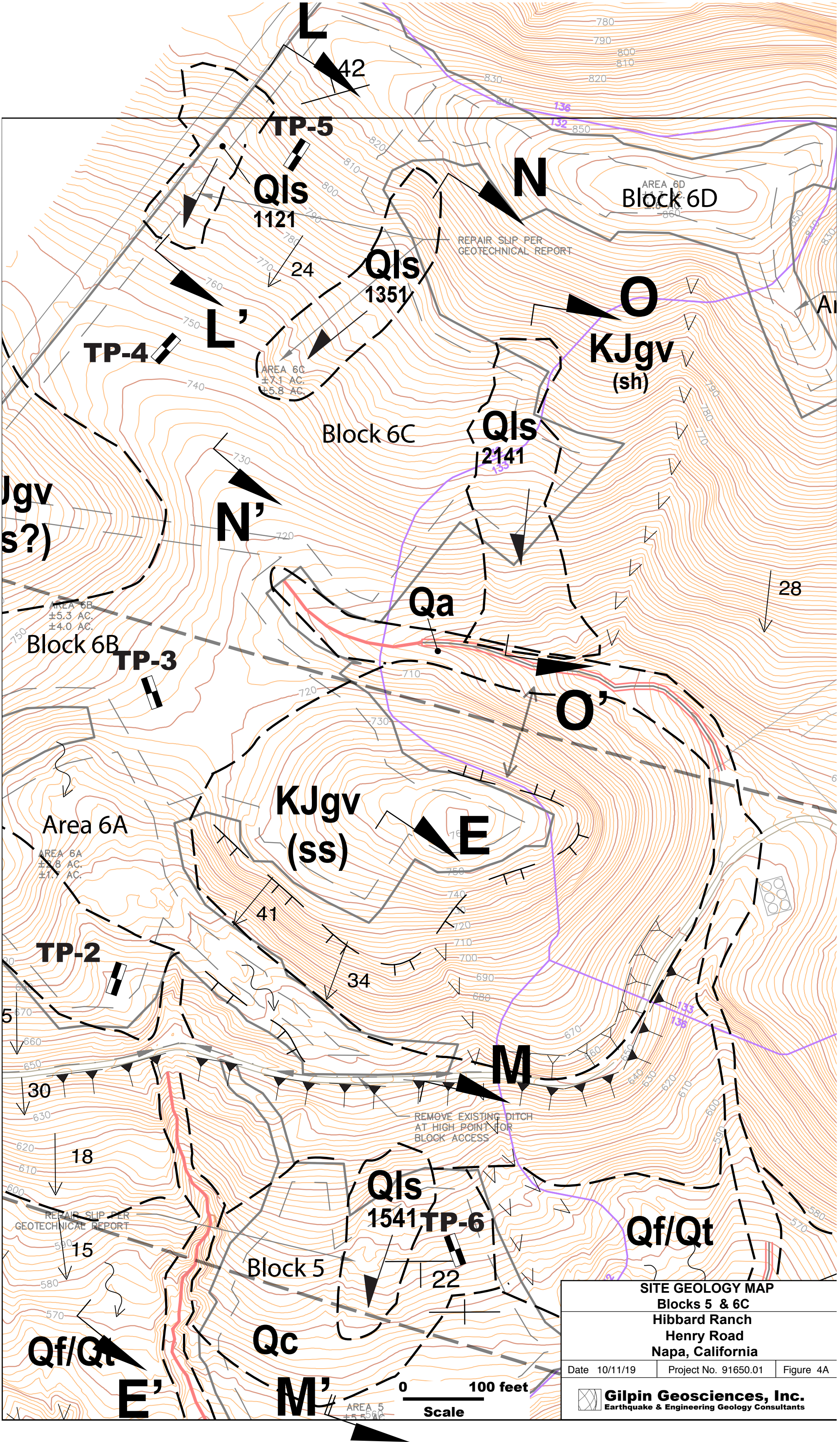


CROSS SECTION
C - C'
Block 4A

Hibbard Ranch
Henry Road
Napa, California

Date 10/11/19	Project No. 91650.01	Figure 3B

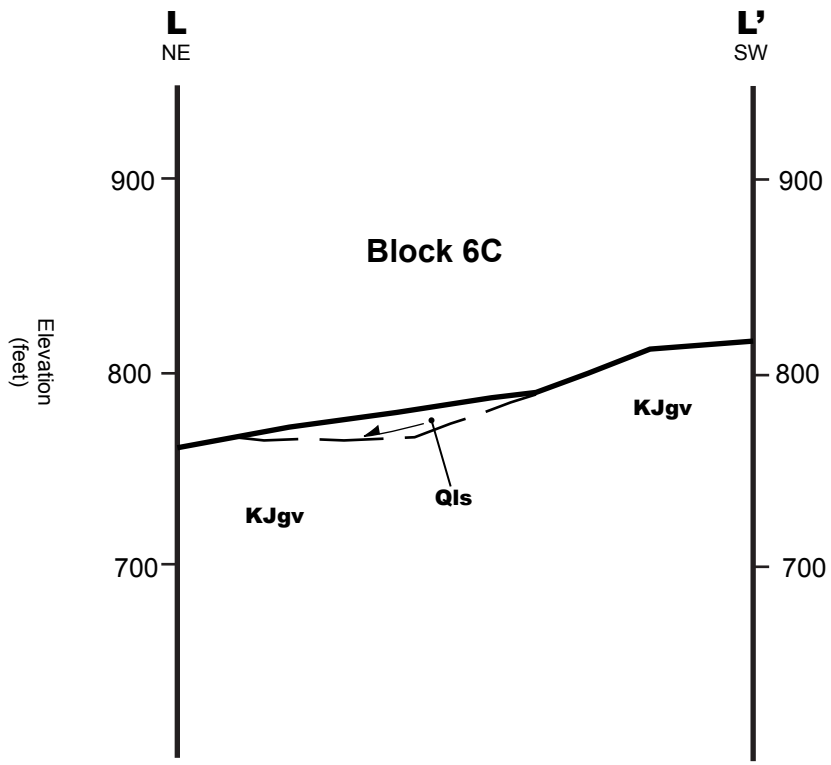
Gilpin Geosciences, Inc.
Earthquake & Engineering Geology Consultants

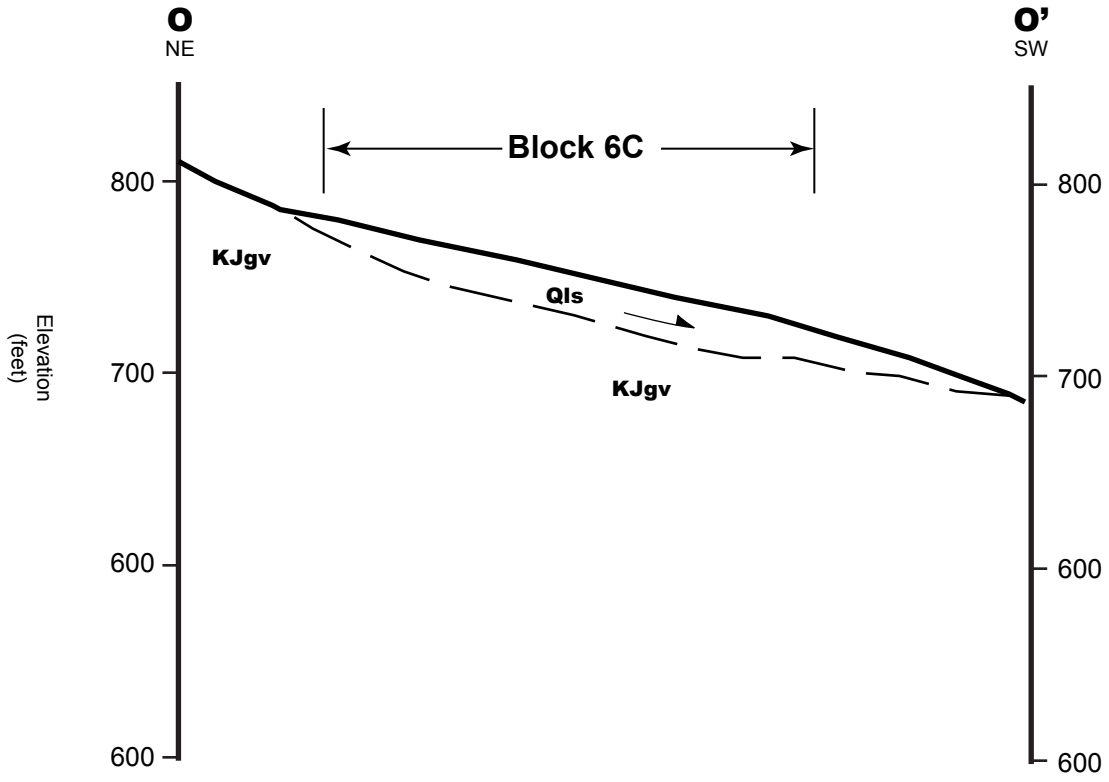


SITE GEOLOGY MAP
Blocks 5 & 6C
Hibbard Ranch
Henry Road
Napa, California

Date 10/11/19	Project No. 91650.01	Figure 4A

Gilpin Geosciences, Inc.
Earthquake & Engineering Geology Consultants



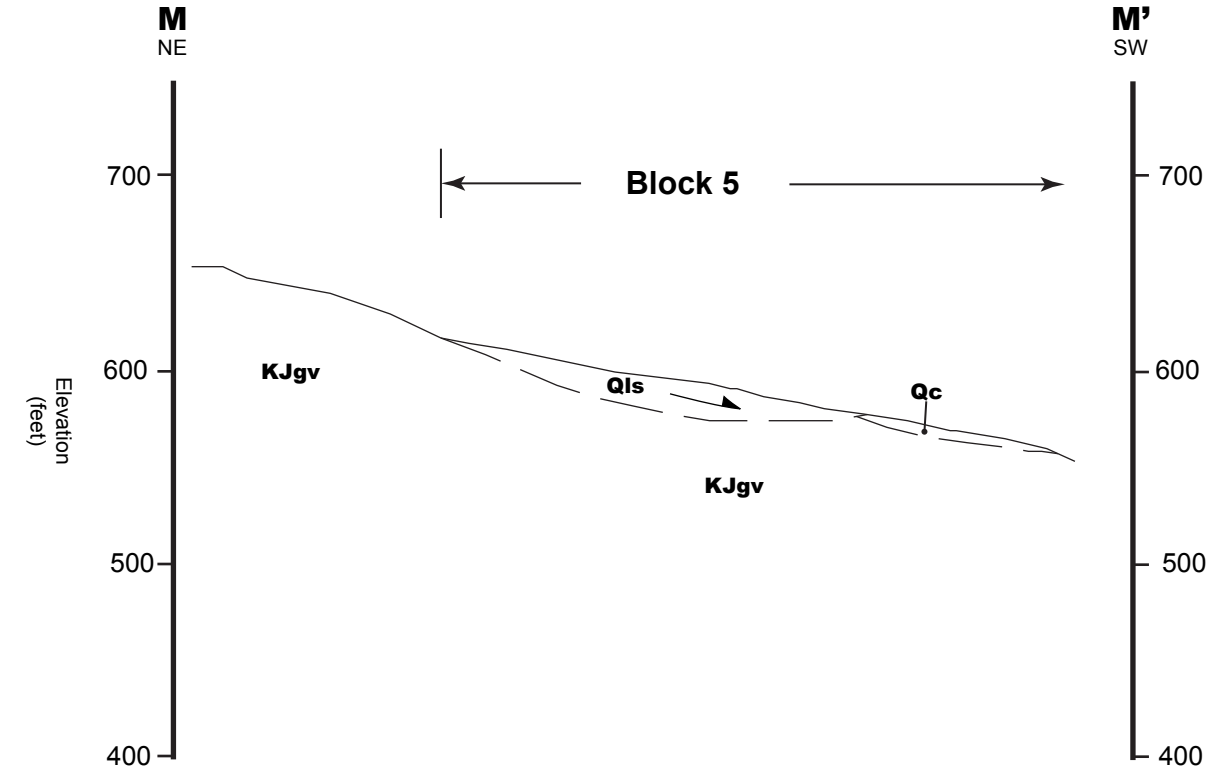


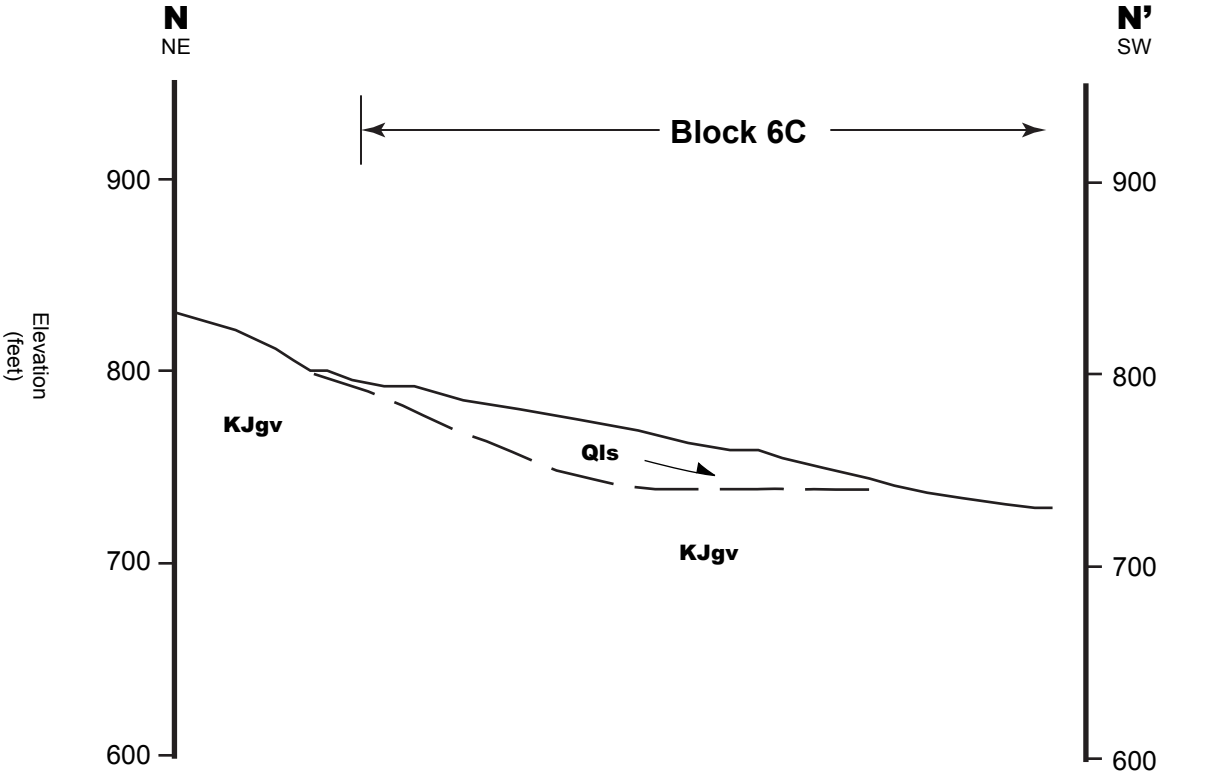
CROSS SECTIONS L-L' & O-O'
Block 6C

Hibbard Ranch
Henry Road
Napa, California

Date: 10/11/19 | Project No.: 91650.01 | Figure 4B

Gilpin Geosciences, Inc.
Earthquake & Engineering Geology Consultants



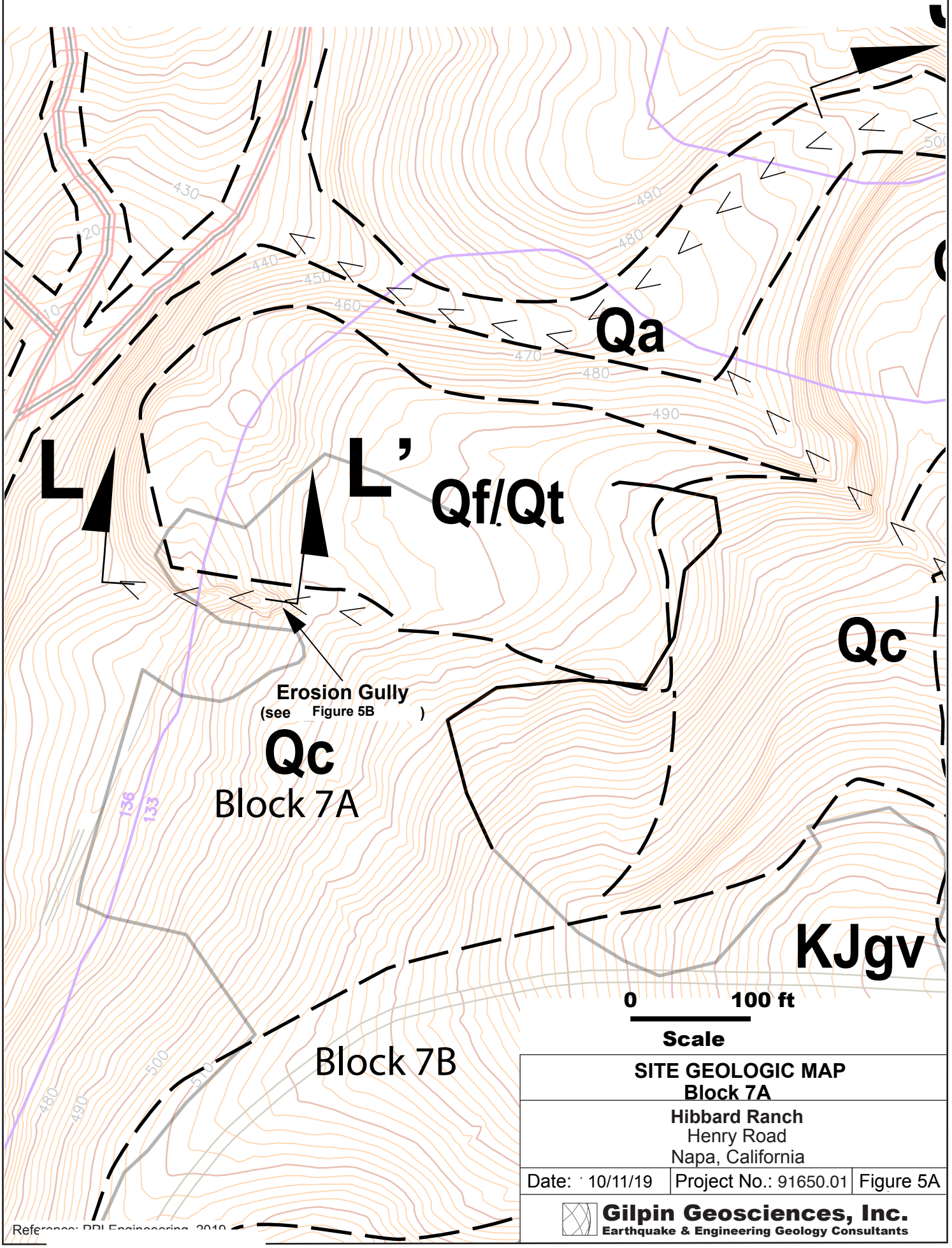


CROSS SECTIONS N-N' & M-M'
Blocks 5 & 6C

Hibbard Ranch
Henry Road
Napa, California

Date: 10/11/19 | Project No.: 91650.01 | Figure 4C

Gilpin Geosciences, Inc.
Earthquake & Engineering Geology Consultants



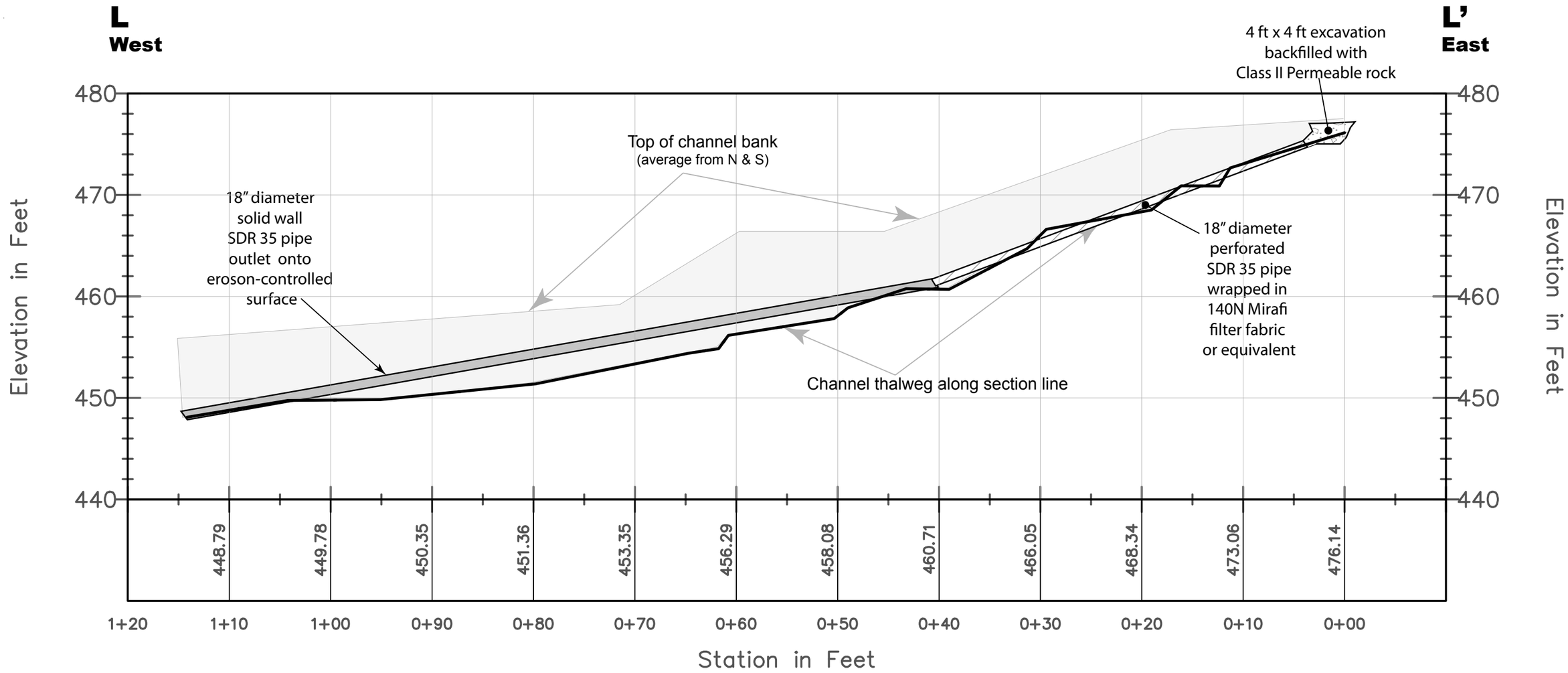
SITE GEOLOGIC MAP
Block 7A

Hibbard Ranch
Henry Road
Napa, California

Date: 10/11/19	Project No.: 91650.01	Figure 5A

Gilpin Geosciences, Inc.
Earthquake & Engineering Geology Consultants

Reference: PBI Engineering, 2019



Constuction Sequence:

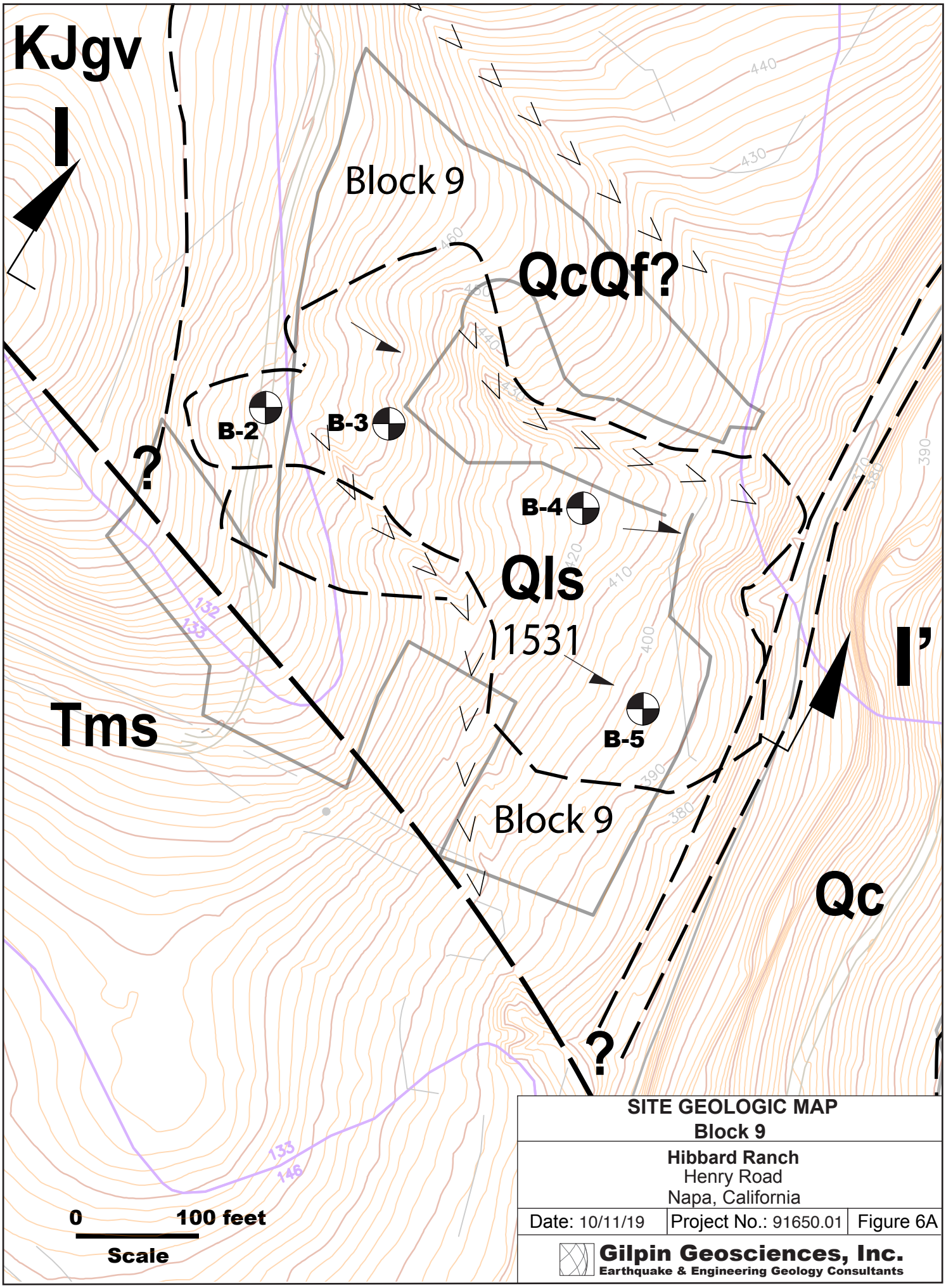
1. rough grade channel to fit pipe
2. place 18"-diameter pipe
3. excavate and place
Class II permeable material
at top of pipe
4. cover pipe and restore natural ground surface

CROSS SECTION
L - L'
Block 7A

Hibbard Ranch
Henry Road
Napa, California

Date 1/24/20	Project No. 91650.01	Figure 5B

Gilpin Geosciences, Inc.
Earthquake & Engineering Geology Consultants

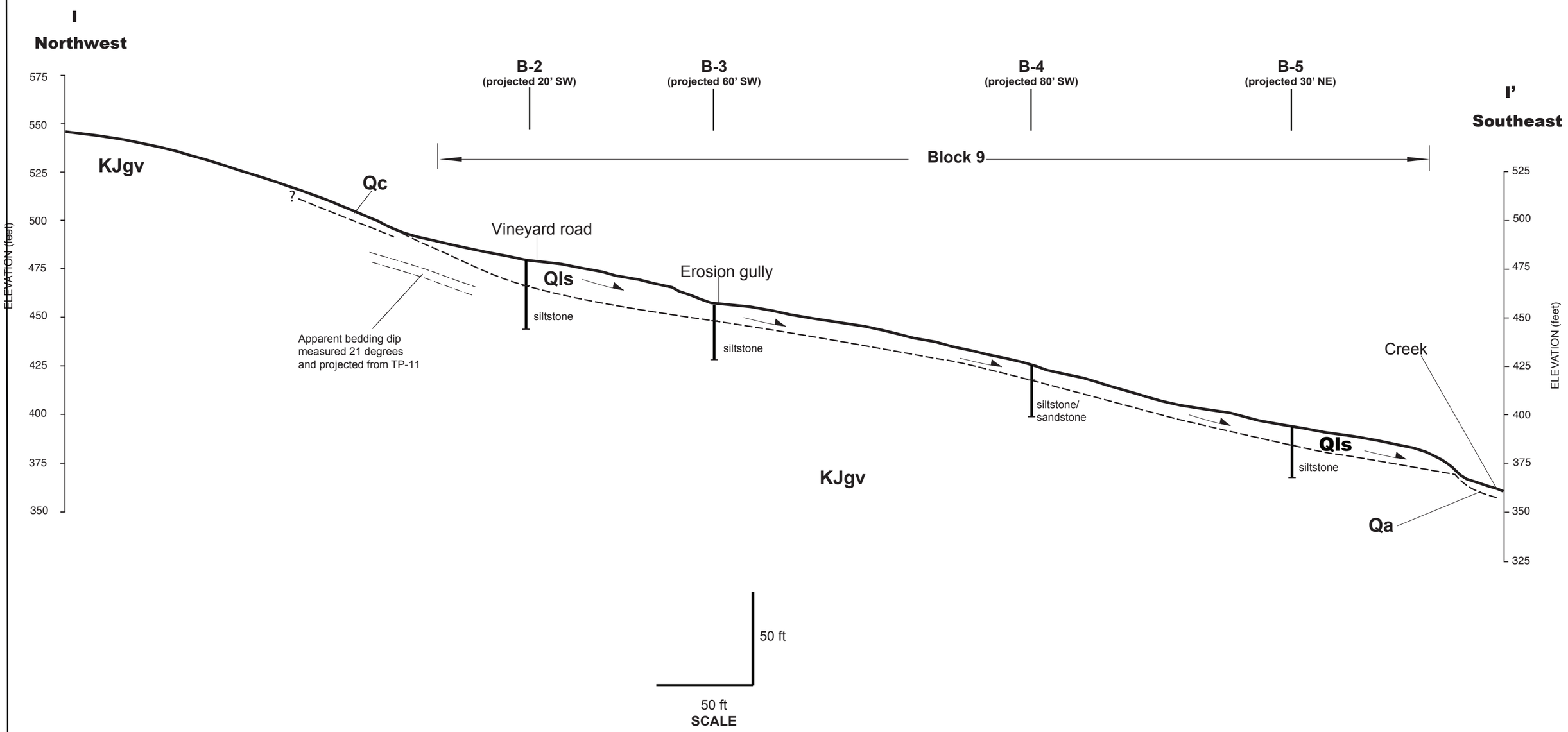


SITE GEOLOGIC MAP
Block 9

Hibbard Ranch
Henry Road
Napa, California

Date: 10/11/19	Project No.: 91650.01	Figure 6A

Gilpin Geosciences, Inc.
Earthquake & Engineering Geology Consultants

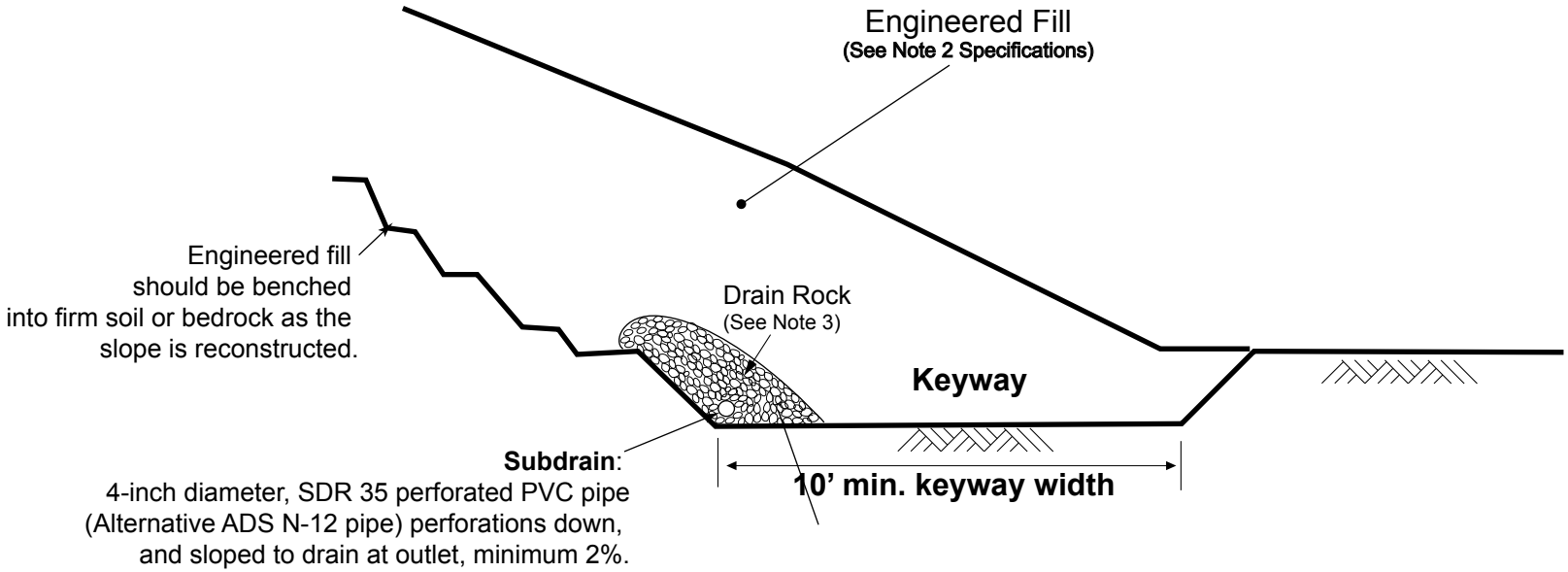


CROSS SECTION
I - I'
Block 9

Hibbard Ranch
Henry Road
Napa, California

Date 10/11/19	Project No. 91650.01	Figure 6B

Gilpin Geosciences, Inc.
Earthquake & Engineering Geology Consultants



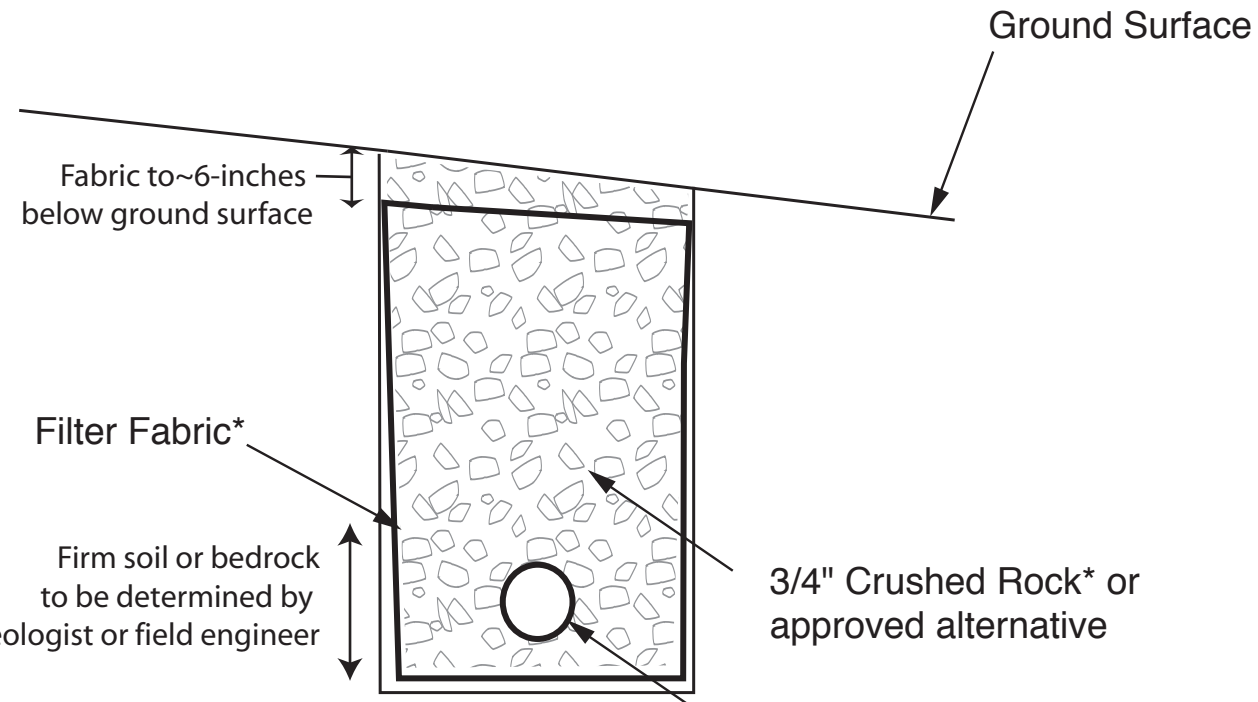
Notes: 1) Keyway should extend 2 feet into firm soil or bedrock as determined by geologist or field engineer.
2) Fill should be placed in 8-inch lifts and compacted to 90% relative density.
3) Additional subdrains may be required where fill is placed against existing slopes.
4) Drain rock should be 3/4-inch clean gravel wrappedin filter fabric (Mirafi 140N or equivalent), or Caltrans Class 2 permeable material

SCHEMATIC EARTH BUTTRESS AND KEYWAY SECTION

Hibbard Ranch
Henry Road
Napa, California

Date 10/11/2019	Project No. 91650.01	Figure 7

Gilpin Geosciences, Inc.
Earthquake & Engineering Geology Consultants



Subdrain Detail

Not to Scale

*Note: Caltrans Class 2 permeable aggregate can be substituted for Filter fabric and 3/4" crushed rock.

Subdrain Typical Detail

Hibbard Ranch
Henry Road
Napa, California

Date 10/11/19	Project No. 91650.01	Figure 8

Gilpin Geosciences, Inc.
Earthquake & Engineering Geology Consultants

APPENDIX A

Logs of Test Borings

PROJECT: **V. Satui Vineyard (Hibbard Ranch)**
Henry Road
Napa, California

Log of Boring B-1

Boring location: See Figure 2 - Site Plan and Geology Map
Logged by: R.Ford
Date started: 7/18/19 | Date finished: 7/18/19
Drilling method: CME-55, 4" Solid Flight Auger
Hammer weight/drop: 140 lbs / 30 inches | Hammer type: Automatic
Sampler: Modified California 2.43-inch ID, Standard Penetration (SPT)

DEPTH (feet)	SAMPLES: Sample Type	SAMPLES: Sample	SAMPLES: Blows/foot[1]	LITHOLOGY	MATERIAL DESCRIPTION (Ground Surface Elevation: 616 feet[2])	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1–2	SPT		4	CL (af)	SILTY to SANDY CLAY with GRAVEL (CL), yellow to yellowish brown, moist, soft, fine sub-angular sandstone and siltstone gravel (Fill / Landslide Deposit)						
5–6	SPT		3	CL (Qls)	yellow, yellowish orange, olive, moist, very soft, (Landslide Deposit)						
10–11	MC		4	GC (Qls)	CLAYEY GRAVEL with SILT and SAND (GC), olive gray and yellow mottled, moist to wet, very loose, abundant decomposed angular olive brown siltstone gravel (Landslide Deposit)						
15–16	MC		51	si (KJgv)	SILTSTONE, dark gray to olive, yellow oxidation,very thin-bedded, low hardness, weak, moderately weathered, with light gray clay-filled fractures (Great Valley Complex)						
20–21	SPT		77	si/ss	yellow very thinly interbedded sandstone, yellowish red oxidation on joint and bedding surfaces, friable, locally, steeply dipping bedding						
25–26	SPT		97		dark gray						

1. Blow counts converted to approximate SPT N-values.
2. Elevation Datum

PROJECT: **V. Satui Vineyard (Hibbard Ranch)**
Henry Road
Napa, California

Log of Boring B-2

Boring location: See Figure 2 - Site Plan and Geology Map
Logged by: R.Ford
Date started: 7/18/19 Date finished: 7/18/19
Drilling method: CME-55, 4" Solid Flight Auger
Hammer weight/drop: 140 lbs / 30 inches Hammer type: Automatic
Sampler: Modified California 2.43-inch ID, Standard Penetration (SPT)

DEPTH (feet)	SAMPLES: Sample Type	SAMPLES: Sample	SAMPLES: Blows/foot[1]	LITHOLOGY	MATERIAL DESCRIPTION (Ground Surface Elevation: 480 feet[2])	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1–2	MC		10	ML	SANDY SILT with GRAVEL (ML), yellowish brown, brown, slightly moist to dry, soft, stiff, porous, rootlets (Landslide Deposit)						
3–4				(Qls)							
5–6	MC			CL	SILTY CLAY (CL), dark yellowish brown, moist, very stiff, localized gray clay surrounds sand-size pebbles.						
7	SPT		16								
8			16								
9–10											
11	MC		12	CL-CH	(GC), gray, olive and yellowish brown mottled, with black oxidized blebs, moist, stiff to very stiff, medium plasticity (Landslide Deposit)						
12	SPT			(Qls)							
13			12								
14–15											
16	MC		17								
17	SPT			CL-GC	SILTY CLAY with GRAVEL to CLAYEY GRAVEL (CL-GC), olive brown, to olive yellow, moist, very stiff/medium dense abundant decomposed siltstone gravel/fragments (Landslide Deposit)						
18			16								
19–20											
21	SPT		12	CL-GC							
22–23				(Qls)							
24–25											
26	SPT		9	CL-CH	SANDY CLAY (CL-CH) with black layered organic material, wet, soft (Slide Plane)						
27	MC		17	si	SILTSTONE, dark gray to olive brown, very thin-bedded, low-hardness, friable to weak, moderately weathered, with light gray clay-filled fractures and polished surfaces (Great Valley Complex)						
28	SPT										
29			119	(KJgv)							
30											

1. Blow counts converted to approximate SPT N-values.
2. Elevation Datum

PROJECT: **V. Satui Vineyard (Hibbard Ranch)**
Henry Road
Napa, California

Log of Boring B-2

Boring location: See Figure 2 - Site Plan and Geology Map
Logged by: R.Ford

Date started: 7/18/19 | Date finished: 7/18/19

Drilling method: CME-55, 4" Solid Flight Auger

Hammer weight/drop: 140 lbs / 30 inches | Hammer type: Automatic

Sampler: Modified California 2.43-inch ID, Standard Penetration (SPT)

DEPTH (feet)	SAMPLES: Sample Type	SAMPLES: Sample	SAMPLES: Blows/foot[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
					Ground Surface Elevation: 480 feet[2]						
31											
32				(KJgv)							
33	SPT			Si	SILTSTONE, dark gray, very thin-bedded, low-hardness, friable to weak, moderately weathered (Great Valley Complex)						
34			49								
35											
36											
37											
38											
39											
40											
41											
12											
43											
44											
45											
46											
47											
48											
49											
50											
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											

1. Blow counts converted to approximate SPT N-values.
2. Elevation Datum

PROJECT: **V. Satui Vineyard (Hibbard Ranch)**
Henry Road
Napa, California

Log of Boring B-3

Boring location: See Figure 2 - Site Plan and Geology Map
Logged by: R.Ford
Date started: 7/19/19 Date finished: 7/19/19
Drilling method: CME-55, 4" Solid Flight Auger
Hammer weight/drop: 140 lbs / 30 inches Hammer type: Automatic
Sampler: Modified California 2.43-inch ID, Standard Penetration (SPT)

DEPTH (feet)	SAMPLES: Sample Type	SAMPLES: Sample	SAMPLES: Blows/foot[1]	LITHOLOGY	MATERIAL DESCRIPTION (Ground Surface Elevation: 470 feet[2])	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1–4				(Qls)							
5–6	MC		7	CL	SILTY to SANDY CLAY with GRAVEL (CL), yellow to yellowish brown, moist, soft to medium stiff (Landslide Deposit)						
7–10											
10–11	SPT		6	CL	SILTY to SANDY CLAY with GRAVEL (CL), yellow to brown and gray mottled, with trace black, moist, medium stiff, abundant fine decomposed siltstone gravel (Landslide Deposit)						
12–13				(Qls)							
14–15											
15–16	MC		8	GC	CLAYEY GRAVEL with SAND and SILT (GC), olive gray, yellow to olive brown, reddish brown to black oxidation, moist, loose, abundant decomposed siltstone and sandstone (blocks) (Landslide Deposit)						
17–20											
20–21	SPT		81	si	SILTSTONE, olive gray, yellow to yellowish orange oxidation, very thin-bedded, low-hardness, friable to weak, deeply to moderately weathered (Great Valley Complex)						
22–24				(KJgv)							
25–27											
28–29	SPT		26	si	SILTSTONE, gray to dark gray, very thin-bedded, low-hardness, friable to weak, deeply to moderately weathered (Great Valley Complex)						
30											

1. Blow counts converted to approximate SPT N-values.
2. Elevation Datum

PROJECT: **V. Satui Vineyard (Hibbard Ranch)**
Henry Road
Napa, California

Log of Boring B-4

Boring location: See Figure 2 - Site Plan and Geology Map
Logged by: R.Ford
Date started: 7/19/19 | Date finished: 7/19/19
Drilling method: CME-55, 4" Solid Flight Auger
Hammer weight/drop: 140 lbs / 30 inches | Hammer type: Automatic
Sampler: Modified California 2.43-inch ID, Standard Penetration (SPT)

DEPTH (feet)	SAMPLES: Sample Type	SAMPLES: Sample	SAMPLES: Blows/foot[1]	LITHOLOGY	MATERIAL DESCRIPTION (Ground Surface Elevation: 420 feet[2])	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1–2	SPT		7	ML-CL	SANDY SILT to SANDY CLAY (ML-CL), olive gray to dark yellowish brown and yellowish orange mottled, slightly moist, medium stiff (Landslide Deposit)						
3–4				(Qls)							
5–6	MC		12	GC	CLAYEY GRAVEL with SAND and SILT (GC), olive gray, yellow to olive brown, reddish brown to black oxidation, moist, loose, abundant decomposed siltstone and sandstone (blocks)						
7–8				(Qls)	(Landslide Deposit)						
9–10											
10–11	SPT		12	CL / GC	SANDY CLAY (CL), reddish brown, gray, yellow mottled, moist, medium stiff (Landslide Deposit)						
12–13				(Qls)	CLAYEY GRAVEL with SAND and SILT (GC), olive gray, yellow to olive brown, reddish brown to black oxidation, moist, loose, abundant decomposed siltstone and sandstone (blocks) (Landslide Deposit)						
14–15											
15–16	SPT		25	CL / si	SILTY CLAY with GRAVEL(CL), yellow to yellowish brown, yellowish orange, moist, stiff to very stiff (Residual Soil)						
17–18				(KJgv)	SILTSTONE, olive to dark gray, very thin-bedded, low-hardness, friable to weak, deeply to moderately weathered (Great Valley Complex)						
19–20	SPT		33	si	olive, reddish brown to dark brown oxidized, deeply weathered friable, locally, with clay-filled fractures						
21–22											
23–24											
25–26	SPT		29	si / ss	SANDSTONE,yellow to yellowish brown, fine grained, very thin-bedded with gray laminae, low-hardness, friable to weak, deeply to completely weathered, steeply dipping bedding (Great Valley Complex)						
27–28											
29–30											

1. Blow counts converted to approximate SPT N-values.
2. Elevation Datum

PROJECT: **V. Satui Vineyard (Hibbard Ranch)**
Henry Road
Napa, California

Log of Boring B-5

Boring location: See Figure 2 - Site Plan and Geology Map
Logged by: R.Ford
Date started: 7/19/19 | Date finished: 7/19/19
Drilling method: CME-55, 4" Solid Flight Auger
Hammer weight/drop: 140 lbs / 30 inches | Hammer type: Automatic
Sampler: Modified California 2.43-inch ID, Standard Penetration (SPT)

DEPTH (feet)	SAMPLES: Sample Type	SAMPLES: Sample	SAMPLES: Blows/foot[1]	LITHOLOGY	MATERIAL DESCRIPTION (Ground Surface Elevation: 396 feet[2])	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
1–2	SPT		13	CL	SANDY CLAY (CL), dark yellowish brown and yellowish orange and gray mottled, slightly moist, stiff (Colluvium / landslide)						
3–4				(Qc/Qa)							
5–6	MC		25	CL	very stiff, moist, decomposed sandstone gravel						
7–9											
10–11	SPT		22	SC	CLAYEY SAND (SC), gray, with pervasive yellowish orange and dark yellowish brown oxidation, moist, medium dense, fine to medium grained sand, occasional black coarse sand-size fragments (Colluvium/landslide)						
12–13				(Qc)							
14–15											
15–16	SPT		21	CL	SILTY to SANDY CLAY (CL), very stiff (Colluvium/landslide)						
17–19											
20–21	SPT		61	si	SILTSTONE, gray, grayish brown, olive to yellowish brown, very thin-bedded to laminated, low-hardness, friable to weak, near vertical bedding dips, with distinct gray clay-filled fractures, deeply to moderately weathered (Great Valley Complex)						
22–23				(KJgv)							
24–25				si							
25–26	SPT		50/6								
27–30											

1. Blow counts converted to approximate SPT N-values.
2. Elevation Datum

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		Symbols	Typical Names
Coarse-Grained Soils (more than half of soil> no. 200 sieve size)	**Gravels** (More than half of coarse fraction> no. 4 sieve size)	**GW**	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorl-graded gravels or gravel-sand mixtures, little of no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	Sands (More than half of coarse fraction< no. 4 sieve size)	**SW**	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
Fine-Grained Soils (more than half of soil <no. 200 sieve size)	**Silts and Clays** LL = <50	**ML**	Inorganic silts and clayey silts of low plasticity, sandy silts, gravelly silts
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	Silts and Clays LL = >50	**MH**	Inorganic silts of high plasticity
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic silts and clays of high plasticity
Highly Organic Soils		**PT**	Peat and other highly organic soils

GRAIN SIZE CHART

Classification	Range of Grain Sizes	
	U.S. Standard Sieve Size	**Grain Size in Millimeters**
Boulders	Above 12"	Above 305
Cobbles	12" to 3"	305 to 76.2
Gravel coarse fine	3" to No.4 3" to 3/4" 3/4" to No. 4	76.2 to 4.76 76.2 to 19.1 19.1 to 4.76
Sand coarse medium fine	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.76 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
Silt and Clay	Below No. 200	Below 0.074

SAMPLE DESIGNATIONS/SYMBOLS


Sample taken with spit-barrel sampler other than Standard Penetration Test sampler. Darkened are indicated sample obtained


Classification sample taken with Standard Penetration Test sampler


Undisturbed sample taken with thin-walled tube


Disturbed sample


Sampling attempted with no recovery


Core sample


Groundwater level at the time and date indicated

SAMPLER TYPE

C Core barrel

CA California split-barrel sampler with 2-5-inch outside diameter and 1.93-inch inside diameter

D&M Dames & Moore piston sampler using 2.5-inch outside diameter, thin-walled tube

O Osterberg piston sampler using 3.0-inch outside diameter, thin-walled Shelby tube

PT Pitcher tube sampler using 3.0-inch outside diameter, thin-walled Shelby tube

S&H Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter

SPT Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside diameter and a 1.5-inch inside diameter

ST Shelby tube (3.0-inch outside diameter, thin-walled tube) advanced with hydraulic pressure

HIBBARD RANCH
Henry Road
Napa, California

Gilpin Geosciences, Inc.
Earthquake & Engineering Geology Consultants

SOIL CLASSIFICATION CHART

Date: 8/12/19 | Project No.:91650.02 | Figure A-6

I CONSOLIDATION OF SEDIMENTARY ROCKS: usually determined from unweathered samples. Largely dependent on cementation.

U = unconsolidated
P = poorly consolidated
M = moderately consolidated
W = well consolidated

II BEDDING OF SEDIMENTARY ROCKS

Splitting Property	Thickness	Stratification
Massive	Greater than 4.0 ft.	very thick-bedded
Blocky	2.0 to 4.0 ft.	thick bedded
Slabby	0.2 to 2.0 ft.	thin bedded
Flaggy	0.05 to 0.2 ft.	very thin-bedded
Shaly or platy	0.01 to 0.05 ft.	laminated
Papery	less than 0.01	thinly laminated

III FRACTURING - graphic logs indicate f-fractures and mf-mechanical breaks caused by drilling.

Intensity	Size of Pieces in Feet
Very little fractured	Greater than 4.0
Occasionally fractured	1.0 to 4.0
Moderately fractured	0.5 to 1.0
Closely fractured	0.1 to 0.5
Intensely fractured	0.05 to 0.1
Crushed	Less than 0.05

IV HARDNESS

1. **Soft** - reserved for plastic material alone.
2. **Low hardness** - can be gouged deeply or carve easily with a knife blade.
3. **Moderately hard** - can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and is readily visible after the powder has been blown away.
4. **Hard** - can be scratched with difficulty; scratch produced a little powder and is often faintly visible.
5. **Very hard** - cannot be scratched with knife blade; leaves a metallic streak.

V STRENGTH

1. **Plastic** or very low strength.
2. **Friable** - crumbles easily by rubbing with fingers.
3. **Weak** - an unfractured specimen of such material will crumble under light hammer blows.
4. **Moderately strong** - specimen will withstand a few hammer blows before breaking.
5. **Strong** - specimen will withstand a few heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.
6. **Very strong** - specimen will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.

VI WEATHERING - The physical and chemical disintegration and decomposition of rocks and minerals by natural processes such as oxidation, reduction, hydration, solution, carbonation, and freezing and thawing.

Deep - moderate to complete mineral decomposition; extensive disintegration; deep and thorough discoloration; many fractures, all extensively coated or filled with oxides, carbonates and/or clay or silt.

Moderate - slight change or partial decomposition of minerals; little disintegration; cementation little to unaffected. Moderate to occasionally intense discoloration. Moderately coated fractures.

Little - no megascopic decomposition of minerals; little or no effect on normal cementation. Slight and intermittent, or localized discoloration. Few stains on fracture surfaces.

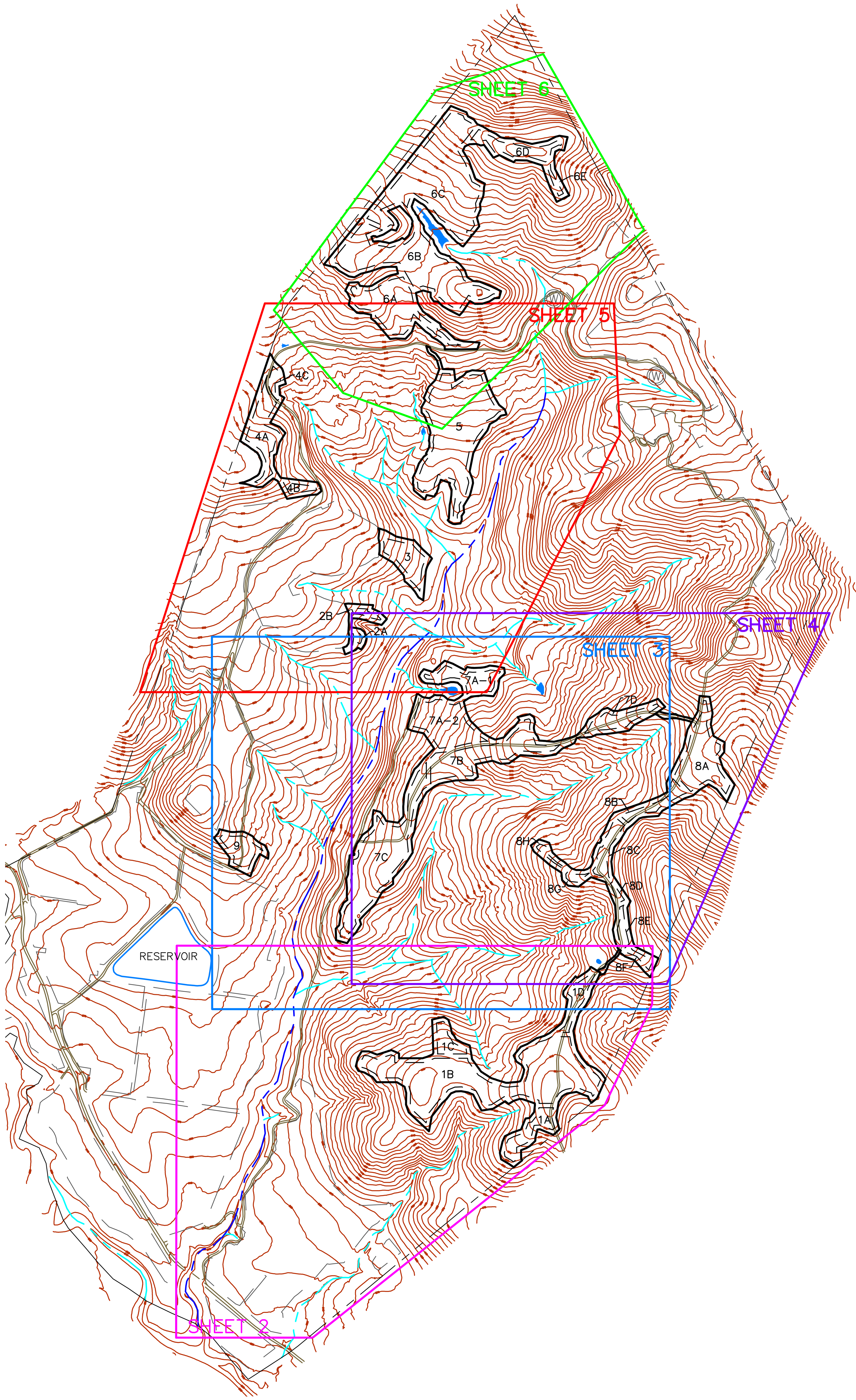
Fresh - unaffected by weathering agents. No disintegration or discoloration. Fractures usually less numerous than joints.

HIBBARD RANCH
Henry Road
Napa, California

Gilpin Geosciences, Inc.
Earthquake & Engineering Geology Consultants

PHYSICAL PROPERTIES CRITERIA FOR ROCK DESCRIPTIONS

Date: 8/12/19 | Project No.:91650.02 | Figure A-7



GRAPHIC SCALE

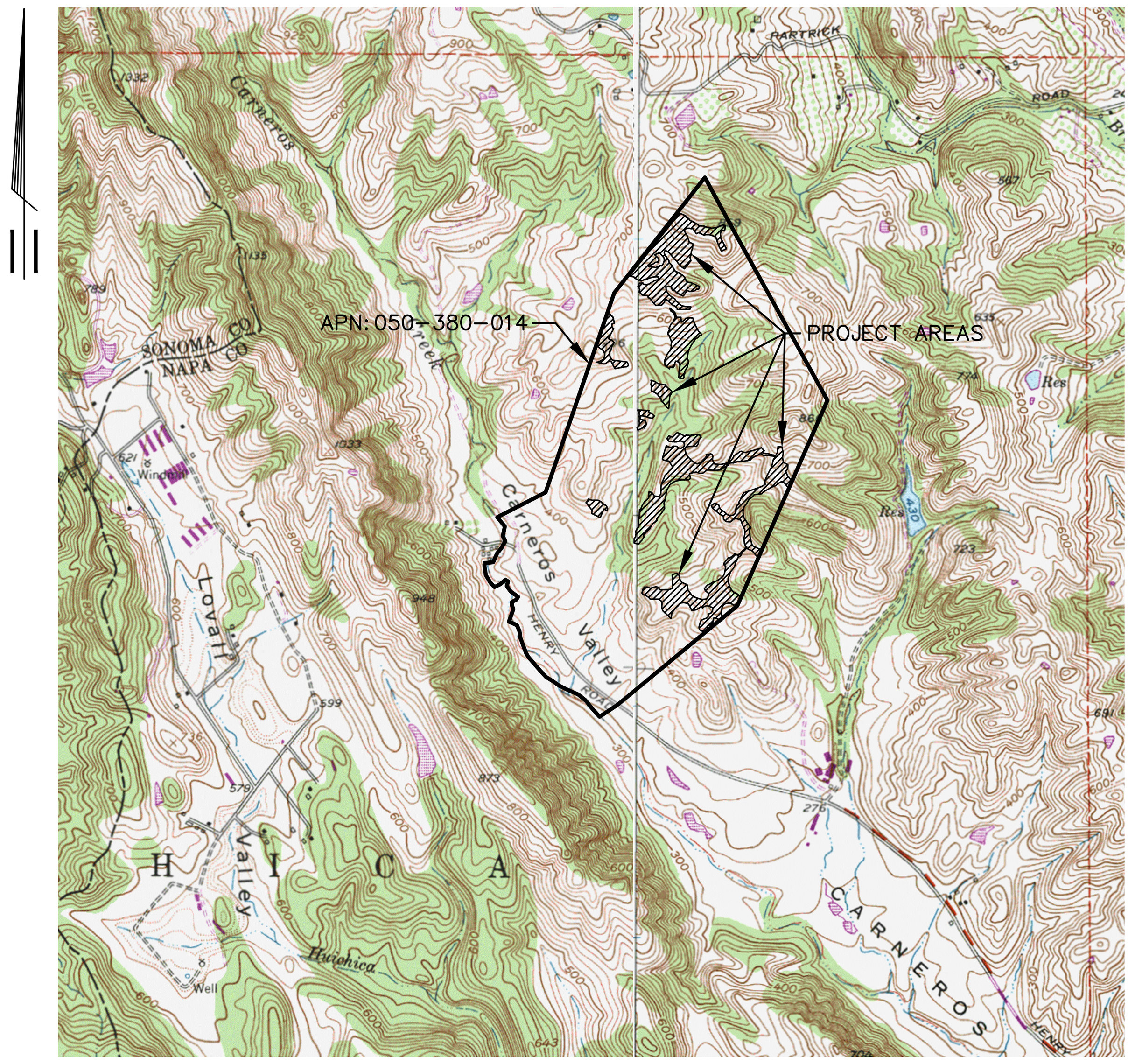
400 0 200 400 800 1600

(IN FEET)
1 inch = 400 ft.

TOPOGRAPHIC MAPPING PROVIDED BY AMERICAN AERIAL MAPPING, INC. MAY 2017. 2' CONTOUR INTERVAL
INTERMEDIATE CONTOURS ARE TURNED OFF FOR THIS VIEW

LEGEND

- APPROXIMATE PROPERTY LINE LOCATION
- EXISTING VINEYARD AREA
- U.S.G.S. BLUE LINE STREAM
- EPHEMERAL STREAM, MAPPED BY WRA
- WETLAND, MAPPED BY WRA
- EXISTING RESERVOIR
- EXISTING ROAD
- PROPOSED VINEYARD DEVELOPMENT AREA
- PROPOSED VINEYARD BLOCK BOUNDARY
- EXISTING WELL



VICINITY MAP

USGS NAPA & SONOMA QUADRANGLES
TOWNSHIP 5 N., RANGE 5 W.
SCALE: 1" = ±2000'

NOTES:

1. OWNER: V. SATTUI WINERY, INC.
   SITE ADDRESS: NO SITUS
   APN: 050-380-014
2. ACCESS TO PROJECT IS FROM HENRY ROAD. THE SITE IS GATED AND LOCKED. ADMITTANCE IS AVAILABLE UPON REQUEST.
3. EXISTING VEGETATION CONSISTS OF GRASS, BRUSH & TREES.
4. DISTURBED AREAS SHALL BE SEEDED AS DESCRIBED BELOW. STRAW MULCH SHALL BE APPLIED TO ALL DISTURBED AREAS AT A RATE OF 3,000 POUNDS PER ACRE PRIOR TO OCTOBER 15 OF THE YEAR OF CONSTRUCTION.
5. PERMANENT COVER CROP (NO-TILL):
   A PERMANENT COVER CROP STRATEGY WILL BE UTILIZED. THE PERMANENT COVER CROP WILL BE GENERATED THE FIRST YEAR BY SEEDING WITH THE FOLLOWING MIX:

VARIETY	RATE (LBS/ACRE)
DWARF BARLEY	50
BLANDO BROME	9
ZORRO FESCUE	13

   A PRE-APPROVED ALTERNATIVE SEED MIX MAY BE ALLOWED.

   THE PERMANENT COVER CROP WILL BE MANAGED EACH YEAR SUCH THAT ANY AREAS WHICH HAVE LESS THAN 80% VEGETATIVE COVER WILL BE RESEEDED AND MULCHED UNTIL ADEQUATE COVERAGE IS ACHIEVED. THE PERMANENT COVER CROP SHALL BE MOWED ONLY AND NOT DISKED.
6. THE OWNER HAS THE OPTION OF USING A DWARF BARLEY COVER CROP IN THE FIRST THREE YEARS THAT THE BLOCKS ARE PLANTED TO AID WITH VINEYARD ESTABLISHMENT. IF THIS OPTION IS USED, SEED SHALL BE APPLIED AT A RATE OF 120 POUNDS PER ACRE IF BROADCAST OR AT A RATE OF 60 POUNDS PER ACRE IF DRILLED. THE COVER CROP WITHIN THE VINEYARD MAY BE DISKED EACH SPRING AFTER APRIL 1 FOR THE FIRST THREE YEARS. AN ALTERNATIVE COVER CROP SEED MIX MAY BE USED UPON PRIOR APPROVAL. EACH YEAR THE OWNER CHOOSES TO DISK, THE AREA SHALL BE STRAW MULCHED AT A RATE OF 3,000 POUNDS PER ACRE AND STRAW WATTLES INSTALLED PRIOR TO OCTOBER 15. THE PERMANENT SEED MIX WILL BE SEEDED PRIOR TO OCTOBER 15 OF THE FOURTH (OR EARLIER) YEAR.
7. NO PRE-EMERGENT HERBICIDES WILL BE STRIP SPRAYED IN THE VINEROWS FOR WEED MANAGEMENT. CONTACT OR SYSTEMIC HERBICIDES MAY BE APPLIED IN SPRING (NO EARLIER THAN FEBRUARY 15 TO ENSURE ADEQUATE VEGETATIVE COVER IN THE SPRAY STRIPS FOR THE REMAINDER OF THE RAINY SEASON). THE WIDTH OF THE SPRAY STRIP SHALL BE NO WIDER THAN 1 FOOT IN ORDER TO ACHIEVE 80% VEGETATIVE COVER (BASED ON A 7.5 FOOT MINIMUM ROW SPACING).
8. FERTILIZER SHALL BE APPLIED AS NECESSARY BY VINEYARD MANAGEMENT PERSONNEL FOR BOTH THE VINEYARD AND TO ENSURE SPECIFIED PERCENT VEGETATIVE COVER CROP IS ACHIEVED. SITE-SPECIFIC SOIL ANALYSIS SHOULD BE PERFORMED
9. THE VINEYARD AVENUES SHALL BE MOWED ONLY AND SHALL NOT BE DISKED. UNLESS OTHERWISE NOTED, ALL AVENUES SHALL CONFORM TO THE NATURAL GRADE. VINEYARD AVENUES SHALL BE SEEDED AND MULCHED PRIOR TO OCTOBER 15 OF THE YEAR OF CONSTRUCTION AND IN SUBSEQUENT YEARS IN BARE OR DISTURBED AREAS. THE COVER CROP WILL BE MANAGED EACH YEAR SUCH THAT ANY AVENUES THAT HAVE LESS THAN 80% VEGETATIVE COVER WILL BE RESEEDED AND MULCHED UNTIL ADEQUATE COVERAGE IS ACHIEVED. SEEDING AND MULCHING IS NOT REQUIRED ON AVENUES AND ROADS PROPERLY SURFACED WITH GRAVEL.
10. THE PROPOSED VINE BY ROW SPACING IS EXPECTED TO BE 4 FEET BY 7.5 FEET, HOWEVER IN AREAS WHERE CROSS-SLOPE EXCEEDS 15% THE OWNER SHALL INCREASE THE ROW SPACING AS NEEDED TO ENSURE THERE IS ADEQUATE ROOM FOR EQUIPMENT. WIDTH OF TILLAGE EQUIPMENT SHALL BE NO MORE THAN 75% OF ROW WIDTH TO ALLOW FOR BENCH FORMATION AND TO MINIMIZE EROSION.
11. THE OWNER HAS THE FREEDOM TO FURTHER SUBDIVIDE VINEYARD BLOCKS WITHIN THE FOOTPRINT OF THE PROPOSED VINEYARD FOR IRRIGATION AND VITICULTURE PURPOSES. THE PROPOSED VINEROW DIRECTIONS SHALL NOT BE ALTERED WITHOUT AN APPROVED MODIFICATION FROM NAPA COUNTY.
12. THE LOCATION OF THE EXISTING RESERVOIR AND EXISTING WELLS, THE PROPOSED WATER SOURCES, ARE SHOWN ON THE SITE PLAN.
13. THE PROJECT CURRENTLY HAS DEER FENCE ON A PORTION OF THE PROPERTY. SEE APPENDIX E FOR THE PROPOSED DEER FENCE MAP.
14. REQUESTS FOR FURTHER INFORMATION, CLARIFICATION OF WORK TO BE DONE, OR INSPECTION INFORMATION CAN BE MADE TO JIM BUSHEY OR MATT BUENO AT PPI ENGINEERING IN NAPA, (707) 253-1806.
15. PROPERTY LINES AS SHOWN ARE APPROXIMATE. OWNER SHALL BE RESPONSIBLE FOR SURVEYING PROPERTY LINE(S) AS NECESSARY PRIOR TO ANY SITE DISTURBANCE.
16. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS.
17. AT LEAST 48 HOURS PRIOR TO EXCAVATING, THE CONTRACTOR SHALL CALL UNDERGROUND SERVICES ALERT (U.S.A.) AT 1-800-642-2444 IN ORDER TO LOCATE EXISTING UTILITIES. IT IS THE OWNER'S RESPONSIBILITY TO LOCATE ANY ADDITIONAL UNDERGROUND UTILITIES THAT MAY HAVE BEEN INSTALLED "IN-HOUSE" OR BY PRIVATE CONTRACTORS AND THEREFORE MAY NOT BE LOCATED THROUGH UNDERGROUND SERVICE ALERT.
18. IT IS THE OWNER'S RESPONSIBILITY TO INSTALL ALL STRUCTURAL MEASURES AS SHOWN ON THE SITE PLAN AND DETAILS AND AS DESCRIBED IN THE SPECIFICATIONS WITHIN THE TIME FRAMES SPECIFIED FOR THIS PROJECT. ANY DEVIATION FROM THESE PLANS MUST BE REVIEWED AND APPROVED BY NAPA COUNTY PLANNING, BUILDING AND ENVIRONMENTAL SERVICES DEPARTMENT. IT IS THE OWNER'S RESPONSIBILITY TO INITIATE THIS MODIFICATION PROCESS. PPI ENGINEERING MUST BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF CONSTRUCTION IN ORDER TO SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE OWNER/MANAGER AND CONTRACTOR(S). FOR ONGOING MULTI-YEAR PROJECTS PPI ENGINEERING MUST BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF RESUMING CONSTRUCTION EACH YEAR.
19. STREAM SETBACKS ALONG EXISTING ROADS THAT WILL BE USED FOR PROJECT DEVELOPMENT AND OPERATION ARE SHOWN ON SHEETS 2 THROUGH 6. PRIMARY ACCESS TO BLOCKS 1, 7, AND 8 IS VIA AN EXISTING VINEYARD BLOCK THAT IS CURRENTLY COVERED BY ECP #P11-00434.

   AS STATED IN ECP #P11-00434, "...STREAM SETBACKS SHALL BE ESTABLISHED IN THE FIELD AFTER THE VINEYARD HAS BE REMOVED. THE SETBACKS SHALL BE MEASURED AND ESTABLISHED IN ACCORDANCE WITH NAPA COUNTY CONSERVATION REGULATIONS. THE SETBACKS SHALL BE STAKED AND FLAGGED BY THE OWNER, AND OBSERVED AND APPROVED BY NAPA COUNTY PRIOR TO CONTINUATION OF ANY OTHER GROUND DISTURBING ACTIVITIES WITHIN THE SETBACK ZONE. THE SETBACK ZONE SHALL BE SEEDED AND MULCHED AND LEFT UNDISTURBED. THE OUTSIDE EDGE OF THE VINEYARD ACCESS AVENUE/TURNSPACE SHALL BE NO CLOSER TO THE STREAMBANK THAN THE OUTSIDE EDGE OF THE SETBACK ZONE."

   PRIOR TO DEVELOPMENT OF VINEYARD BLOCKS 1, 7 AND 8, THE SETBACK REQUIREMENTS SPECIFIED ABOVE PER ECP #P11-00434 SHALL BE INCORPORATED TO MAINTAIN A NO-TOUCH ZONE WITHIN THE SETBACK AREA ADJACENT TO THE EXISTING VINEYARD BLOCK. ACCESS TO BLOCKS 1, 7, AND 8 FOR DEVELOPMENT AND POST-DEVELOPMENT VINEYARD OPERATIONS SHALL OCCUR WITHIN EXISTING ROADS AND THE UPDATED VINEYARD AVENUE AS APPLICABLE.

REGISTERED PROFESSIONAL ENGINEER
JAMES R. BUSHEY
No. 49931
EXPIRES: 9-30-20
Civil
STATE OF CALIFORNIA

REV. NO.	DESCRIPTION	BY	DATE
1	THIS DRAWING SUPERSEDES DRAWING 11711201A. INCORPORATED CHANGES BASED ON NAPA COUNTY COMMENTS.	JCJ	10/15/19
2	THIS DRAWING SUPERSEDES DRAWING 11711201B. INCORPORATED CHANGES BASED ON NAPA COUNTY COMMENTS. REMOVED VINEYARD AREA FROM BLOCK 6C. ADDED NOTE 19.	JCJ	4/15/20

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

JOB NO: 11711201
DWG. NO: 11711201C

V. SATTUI WINERY INC.
HIBBARD RANCH

EROSION CONTROL PLAN
SITE PLAN

DESIGN ENGINEER: J. BUSHEY, M. BUENO

SCALE:	DRAWN BY:	DATE:	SHEET:
AS SHOWN	JCJ, RR	4-18-20	1 OF: 11

SEE SHEET 3

RESERVOIR

BLOCK 1C
±0.7 GROSS AC.
±0.4 NET AC.

BLOCK 1B
±7.4 GROSS AC.
±5.4 NET AC.

BLOCK 1A
±1.1 GROSS AC.
±0.6 NET AC.

BLOCK 1D
±0.9 GROSS AC.
±0.4 NET AC.

BLOCK 1E
±0.4 GROSS AC.
±0.1 NET AC.

AND AS DIRECTED IN THE FIELD BY THE ENGINEER.

EXISTING VINEYARD BLOCK COVERED BY ECP #P11-00434. SEE SHEET 1, NOTE 19 FOR INFORMATION REGARDING STREAM SETBACK REQUIREMENT AND UPDATING BLOCK BOUNDARIES DURING REDEVELOPMENT.

TOPOGRAPHIC MAPPING PROVIDED BY AMERICAN AERIAL MAPPING, INC. MAY 2017. 2' CONTOUR INTERVAL

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

LEGEND

- APPROXIMATE PROPERTY LINE LOCATION
- EXISTING VINEYARD AREA
- U.S.G.S. BLUE LINE STREAM
- EPHEMERAL STREAM, MAPPED BY WRA
- WETLAND, MAPPED BY WRA
- TOP OF BANK, APPROXIMATE
- NAPA COUNTY STREAM SETBACK
- 26' UNDISTURBED FILTER STRIP
- APPROXIMATE LANDSLIDE BOUNDARY TO BE AVOIDED
- EXISTING ROAD
- EXISTING FENCE
- EXISTING CULVERT, TO BE REPAIRED & MAINTAINED AS NEEDED
- PROPOSED VINEYARD DEVELOPMENT AREA
- PROPOSED VINEYARD BLOCK BOUNDARY
- PROPOSED ROLLING DIP (SEE DETAIL 3, SHEET 7)
- PROPOSED STRAW WATTLE (SEE DETAIL 1, SHEET 7)
- AREA WHERE GROUND SLOPE IS 30 PERCENT OR GREATER
- PROPOSED VINEROW DIRECTION
- (X) PHOTO POINT NUMBER & LOCATION (SEE APPENDIX A)
- X% AVERAGE SURFACE SLOPE
- 133 / 136 SOIL TYPE BOUNDARY

USDA SOIL CLASSIFICATIONS:

131	FAGAN CLAY LOAM, 5–15% SLOPE
133	FAGAN CLAY LOAM, 30–50% SLOPE
136	FELTON GRAVELLY LOAM, 30–50% SLOPE
146	HAIRE LOAM, 2–9% SLOPE

REGISTERED PROFESSIONAL ENGINEER
JAMES C. BUSHEY
No. 49931
EXPIRES: 9-30-20
Civil
STATE OF CALIFORNIA

REV. NO.	DESCRIPTION	BY	DATE
1	THIS DRAWING SUPERSEDES DRAWING 11711201A. INCORPORATED CHANGES BASED ON NAPA COUNTY COMMENTS.	JCJ	10/15/19
2	THIS DRAWING SUPERSEDES DRAWING 11711201B. INCORPORATED CHANGES BASED ON NAPA COUNTY COMMENTS.	JCJ	4/15/20

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

JOB NO: 11711201
DWG. NO: 11711201C

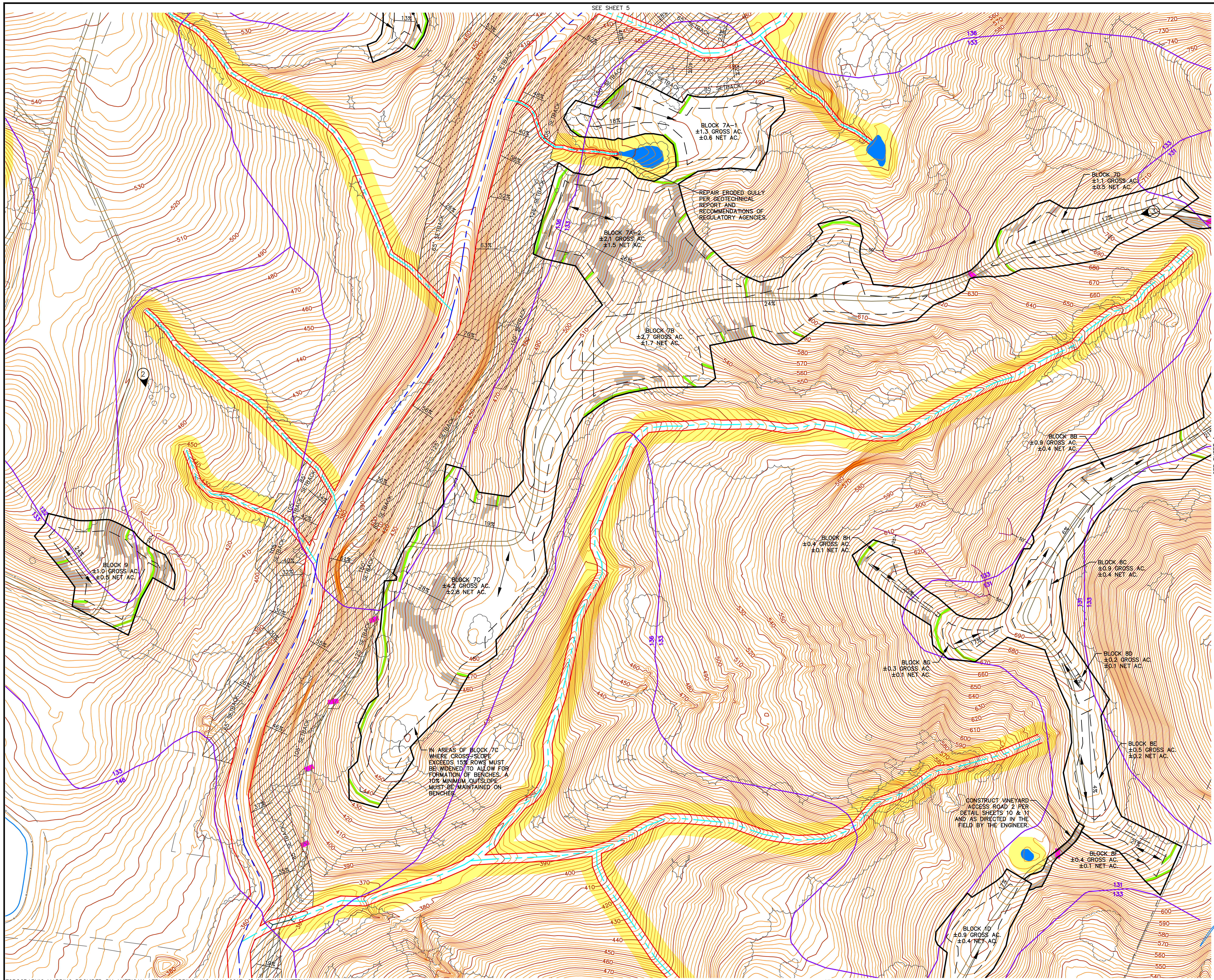
V. SATTUI WINERY INC.
HIBBARD RANCH
EROSION CONTROL PLAN
BLOCK 1

DESIGN ENGINEER: J. BUSHEY, M. BUENO

SCALE:	DRAWN BY:	DATE:	SHEET:
AS SHOWN	JCJ, RR	4-18-20	2 OF: 11

R:\VINEYARD\11711201 Hibbard Ranch Trial 1 ECP\Drawings\11711201C.dwg, 2 BLOCK 1, 4/18/2020 7:46:39 AM

SEE SHEET 5



TOPOGRAPHIC MAPPING PROVIDED BY AMERICAN AERIAL MAPPING, INC. MAY 2017. 2' CONTOUR INTERVAL

SEE SHEET 2

GRAPHIC SCALE

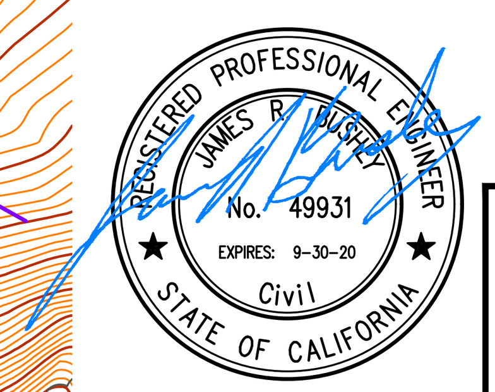
(IN FEET)
1 inch = 100 ft.

LEGEND

- APPROXIMATE PROPERTY LINE LOCATION
- EXISTING VINEYARD AREA
- U.S.G.S. BLUE LINE STREAM
- EPHEMERAL STREAM, MAPPED BY WRA
- TOP OF BANK, APPROXIMATE
- WETLAND, MAPPED BY WRA
- EXISTING RESERVOIR
- NAPA COUNTY STREAM SETBACK
- 26' UNDISTURBED FILTER STRIP
- APPROXIMATE LANDSLIDE BOUNDARY TO BE AVOIDED
- EXISTING ROAD
- EXISTING FENCE
- EXISTING CULVERT, TO BE REPAIRED & MAINTAINED AS NEEDED
- PROPOSED VINEYARD DEVELOPMENT AREA
- PROPOSED VINEYARD BLOCK BOUNDARY
- PROPOSED ROLLING DIP (SEE DETAIL 3, SHEET 7)
- PROPOSED STRAW WATTLE (SEE DETAIL 1, SHEET 7)
- AREA WHERE GROUND SLOPE IS 30 PERCENT OR GREATER
- PROPOSED VINEROW DIRECTION
- (X) PHOTO POINT NUMBER & LOCATION (SEE APPENDIX A)
- X% AVERAGE SURFACE SLOPE
- 133/136 SOIL TYPE BOUNDARY

USDA SOIL CLASSIFICATIONS:

131	FAGAN CLAY LOAM, 5–15% SLOPE
132	FAGAN CLAY LOAM, 15–30% SLOPE
133	FAGAN CLAY LOAM, 30–50% SLOPE
136	FELTON GRAVELLY LOAM, 30–50% SLOPE
146	HAIRE LOAM, 2–9% SLOPE



REV. NO.	DESCRIPTION	BY	DATE
1	THIS DRAWING SUPERSEDES DRAWING 11711201A. INCORPORATED CHANGES BASED ON NAPA COUNTY COMMENTS.	JCJ	10/15/19
2	THIS DRAWING SUPERSEDES DRAWING 11711201B. INCORPORATED CHANGES BASED ON NAPA COUNTY COMMENTS.	JCJ	4/15/20

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

JOB NO: 11711201
DWG. NO: 11711201C

V. SATTUI WINERY INC.
HIBBARD RANCH

EROSION CONTROL PLAN
BLOCKS 7 & 9

DESIGN ENGINEER: J. BUSHEY, M. BUENO

SCALE:	DRAWN BY:	DATE:	SHEET:
AS SHOWN	JCJ, RR	4-18-20	3 OF: 11

SEE SHEET 5

SEE SHEET 3

BLOCK 7A-1
±1.3 GROSS AC.
±0.6 NET AC.

REPAIR ERODED GULLY PER GEOTECHNICAL REPORT AND RECOMMENDATIONS OF REGULATORY AGENCIES.

BLOCK 7A-2
±2.1 GROSS AC.
±1.9 NET AC.

BLOCK 7B
±2.7 GROSS AC.
±1.7 NET AC.

BLOCK 7C
±4.2 GROSS AC.
±2.8 NET AC.

IN AREAS OF BLOCK 7C WHERE CROSS-SLOPE EXCEEDS 15% ROWS MUST BE WIDENED TO ALLOW FOR FORMATION OF BENCHES. A 10% MINIMUM OUTSLOPE MUST BE MAINTAINED ON BENCHES.

BLOCK 7D
±1.1 GROSS AC.
±0.5 NET AC.

CONSTRUCT VINEYARD ACCESS ROAD 1 PER DETAIL SHEETS 8 & 9 AND AS DIRECTED IN THE FIELD BY THE ENGINEER.

BLOCK 8A
±2.3 GROSS AC.
±1.5 NET AC.

BLOCK 8B
±0.9 GROSS AC.
±0.4 NET AC.

BLOCK 8H
±0.4 GROSS AC.
±0.1 NET AC.

BLOCK 8C
±0.9 GROSS AC.
±0.4 NET AC.

BLOCK 8G
±0.3 GROSS AC.
±0.1 NET AC.

BLOCK 8D
±0.2 GROSS AC.
±0.1 NET AC.

BLOCK 8E
±0.5 GROSS AC.
±0.2 NET AC.

CONSTRUCT VINEYARD ACCESS ROAD 2 PER DETAIL SHEETS 10 & 11 AND AS DIRECTED IN THE FIELD BY THE ENGINEER.

BLOCK 8F
±0.4 GROSS AC.
±0.1 NET AC.

TOPOGRAPHIC MAPPING PROVIDED BY AMERICAN AERIAL MAPPING, INC. MAY 2017. 2' CONTOUR INTERVAL

SEE SHEET 2

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

LEGEND

- APPROXIMATE PROPERTY LINE LOCATION
- U.S.G.S. BLUE LINE STREAM
- EPHEMERAL STREAM, MAPPED BY WRA
- TOP OF BANK, APPROXIMATE
- WETLAND, MAPPED BY WRA
- NAPA COUNTY STREAM SETBACK
- 26' UNDISTURBED FILTER STRIP
- APPROXIMATE LANDSLIDE BOUNDARY TO BE AVOIDED
- EXISTING ROAD
- EXISTING FENCE
- PROPOSED VINEYARD DEVELOPMENT AREA
- PROPOSED VINEYARD BLOCK BOUNDARY
- PROPOSED ROLLING DIP (SEE DETAIL 3, SHEET 7)
- PROPOSED STRAW WATTLE (SEE DETAIL 1, SHEET 7)
- AREA WHERE GROUND SLOPE IS 30 PERCENT OR GREATER
- PROPOSED VINEROW DIRECTION
- PHOTO POINT NUMBER & LOCATION (SEE APPENDIX A)
- X% AVERAGE SURFACE SLOPE
- 133 / 136 SOIL TYPE BOUNDARY

USDA SOIL CLASSIFICATIONS:

- 131 FAGAN CLAY LOAM, 5–15% SLOPE
- 133 FAGAN CLAY LOAM, 30–50% SLOPE
- 136 FELTON GRAVELLY LOAM, 30–50% SLOPE

REGISTERED PROFESSIONAL ENGINEER
JAMES C. GLADSTONE
No. 49931
EXPIRES: 9-30-20
Civil
STATE OF CALIFORNIA

REV. NO.	DESCRIPTION	BY	DATE
1	THIS DRAWING SUPERSEDES DRAWING 11711201A. INCORPORATED CHANGES BASED ON NAPA COUNTY COMMENTS.	JCJ	10/15/19
2	THIS DRAWING SUPERSEDES DRAWING 11711201B. INCORPORATED CHANGES BASED ON NAPA COUNTY COMMENTS.	JCJ	4/15/20

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

JOB NO: 11711201
DWG. NO: 11711201C

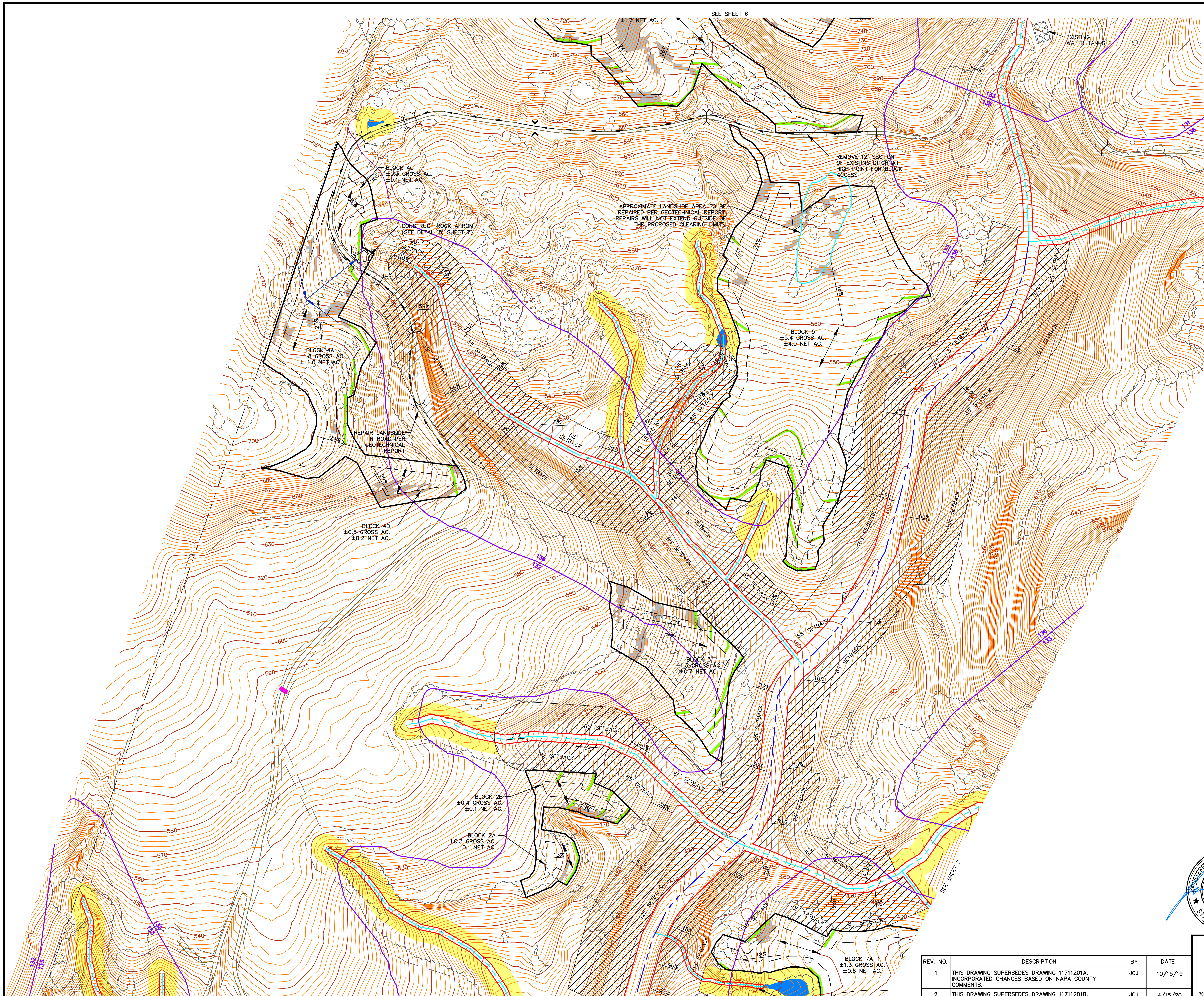
V. SATTUI WINERY INC.
HIBBARD RANCH
EROSION CONTROL PLAN
BLOCK 8

DESIGN ENGINEER: J. BUSHEY, M. BUENO

SCALE:	DRAWN BY:	DATE:	SHEET:
AS SHOWN	JCJ, RR	4-18-20	4 OF: 11

R:\SYS\SHEETS\11711201 Hibbard Ranch Tract 1\ECP\Drawings\11711201C.dwg, 4 BLOCK 8, 4/18/2020 7:47:32 AM

SEE SHEET 6



SEE SHEET 3

TOPOGRAPHIC MAPPING PROVIDED BY AMERICAN AERIAL MAPPING, INC. MAY 2017. 2' CONTOUR INTERVAL

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

LEGEND

- APPROXIMATE PROPERTY LINE LOCATION
- EXISTING VINEYARD AREA
- U.S.G.S. BLUE LINE STREAM
- EPHEMERAL STREAM, MAPPED BY WRA
- WETLAND, MAPPED BY WRA
- TOP OF BANK, APPROXIMATE
- NAPA COUNTY STREAM SETBACK
- 26' UNDISTURBED FILTER STRIP
- APPROXIMATE LANDSLIDE BOUNDARY TO BE AVOIDED
- EXISTING ROAD
- EXISTING FENCE
- EXISTING DITCH, APPROXIMATE LOCATION, TO BE REPAIRED & MAINTAINED AS NEEDED
- EXISTING CULVERT, TO BE REPAIRED & MAINTAINED AS NEEDED
- PROPOSED VINEYARD DEVELOPMENT AREA
- PROPOSED VINEYARD BLOCK BOUNDARY
- PROPOSED SUBSURFACE DRAINAGE PIPELINE (SEE DETAIL 2, SHEET 7)
- PROPOSED ROLLING DIP (SEE DETAIL 3, SHEET 7)
- PROPOSED STRAW WATTLE (SEE DETAIL 1, SHEET 7)
- PROPOSED ROCK APRON (SEE DETAIL 5, SHEET 7)
- AREA WHERE GROUND SLOPE IS 30 PERCENT OR GREATER
- PROPOSED VINEROW DIRECTION
- X% AVERAGE SURFACE SLOPE
- 133/136 SOIL TYPE BOUNDARY

USDA SOIL CLASSIFICATIONS:

131	FAGAN CLAY LOAM, 5-15% SLOPE
132	FAGAN CLAY LOAM, 15-30% SLOPE
133	FAGAN CLAY LOAM, 30-50% SLOPE
136	FELTON GRAVELLY LOAM, 30-50% SLOPE

REGISTERED PROFESSIONAL ENGINEER JAMES R. BUSHEY No. 49931 EXPIRES: 9-30-20 Civil STATE OF CALIFORNIA

REV. NO.	DESCRIPTION	BY	DATE
1	THIS DRAWING SUPERSEDES DRAWING 11711201A. INCORPORATED CHANGES BASED ON NAPA COUNTY COMMENTS.	JCJ	10/15/19
2	THIS DRAWING SUPERSEDES DRAWING 11711201B. INCORPORATED CHANGES BASED ON NAPA COUNTY COMMENTS.	JCJ	4/15/20

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

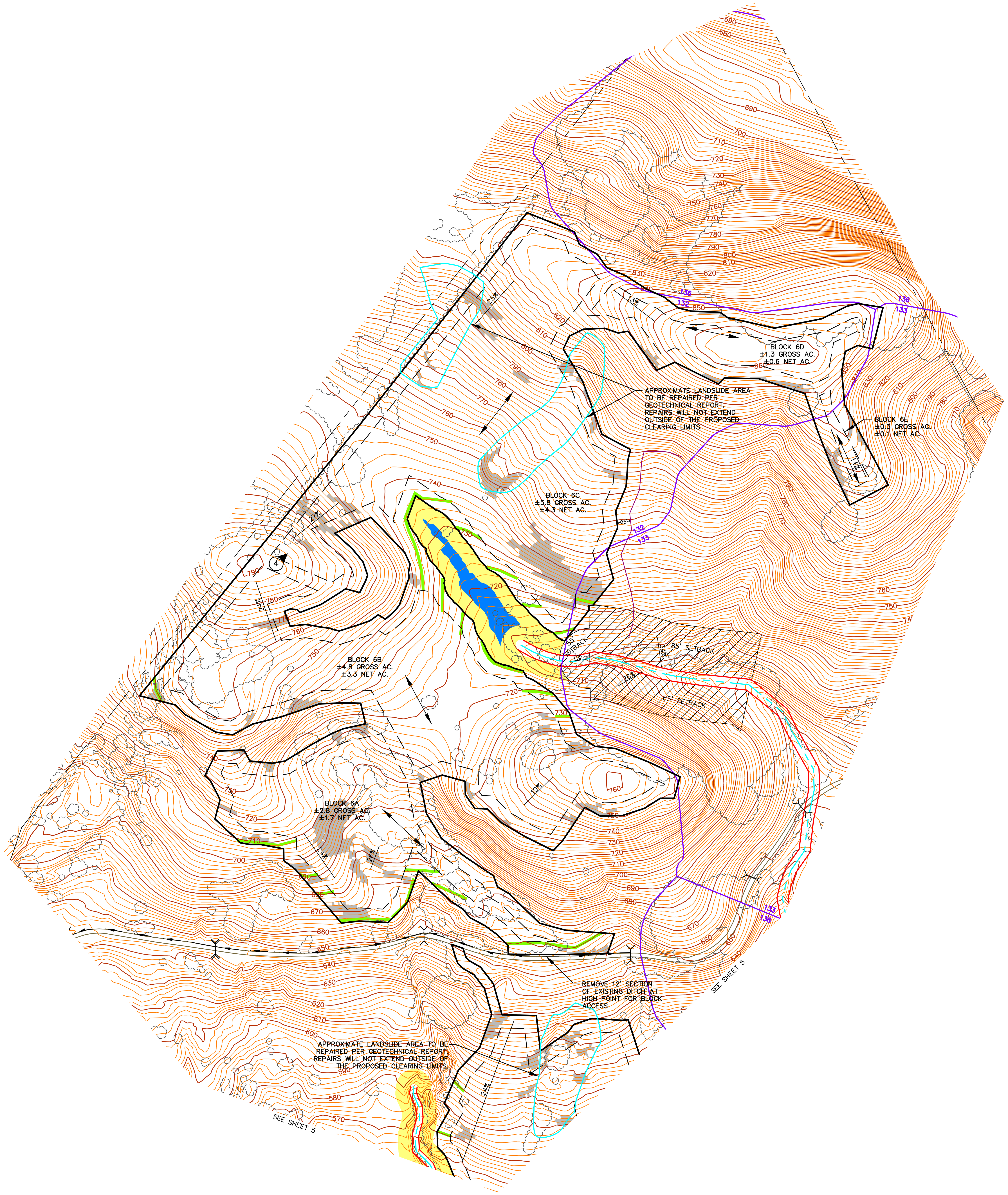
JOB NO: 11711201
DWG. NO: 11711201C

V. SATTUI WINERY INC.
HIBBARD RANCH

EROSION CONTROL PLAN
BLOCKS 2-5

DESIGN ENGINEER: J. BUSHEY, M. BUENO

SCALE:	DRAWN BY:	DATE:	SHEET:
AS SHOWN	JCJ, RR	4-18-20	5 OF: 11



GRAPHIC SCALE

(IN FEET)
1 inch = 100 ft.

LEGEND

- APPROXIMATE PROPERTY LINE LOCATION
- EXISTING VINEYARD AREA
- EPHEMERAL STREAM, MAPPED BY WRA
- WETLAND, MAPPED BY WRA
- TOP OF BANK, APPROXIMATE
- NAPA COUNTY STREAM SETBACK
- 26' UNDISTURBED FILTER STRIP
- APPROXIMATE LANDSLIDE BOUNDARY TO BE AVOIDED
- EXISTING ROAD
- EXISTING FENCE
- EXISTING DITCH, APPROXIMATE LOCATION, TO BE REPAIRED & MAINTAINED AS NEEDED
- EXISTING CULVERT, TO BE REPAIRED & MAINTAINED AS NEEDED
- PROPOSED VINEYARD DEVELOPMENT AREA
- PROPOSED VINEYARD BLOCK BOUNDARY
- PROPOSED STRAW WATTLE (SEE DETAIL 1, SHEET 7)
- AREA WHERE GROUND SLOPE IS 30 PERCENT OR GREATER
- PROPOSED VINEROW DIRECTION
- PHOTO POINT NUMBER & LOCATION (SEE APPENDIX A)
- X% AVERAGE SURFACE SLOPE
- 133 / 136 SOIL TYPE BOUNDARY

USDA SOIL CLASSIFICATIONS:

132	FAGAN CLAY LOAM, 15–30% SLOPE
133	FAGAN CLAY LOAM, 30–50% SLOPE
136	FELTON GRAVELLY LOAM, 30–50% SLOPE

TOPOGRAPHIC MAPPING PROVIDED BY AMERICAN AERIAL MAPPING, INC. MAY 2017. 2' CONTOUR INTERVAL

REV. NO.	DESCRIPTION	BY	DATE
1	THIS DRAWING SUPERSEDES DRAWING 11711201A. INCORPORATED CHANGES BASED ON NAPA COUNTY COMMENTS.	JCJ	10/15/19
2	THIS DRAWING SUPERSEDES DRAWING 11711201B. INCORPORATED CHANGES BASED ON NAPA COUNTY COMMENTS. REMOVED VINEYARD AREA FROM BLOCK 6C.	JCJ	4/15/20

REGISTERED PROFESSIONAL ENGINEER JAMES R. BUSHEY No. 49931 EXPIRES: 9-30-20 Civil STATE OF CALIFORNIA

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

JOB NO: 11711201
DWG. NO: 11711201C

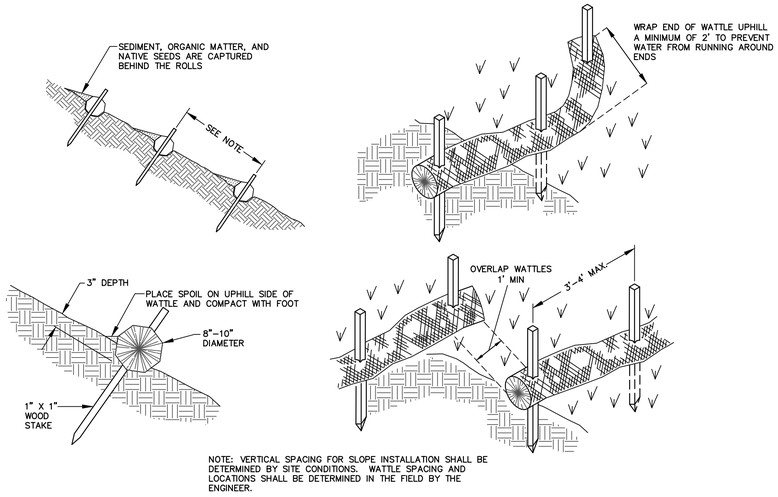
V. SATTUI WINERY INC.
HIBBARD RANCH

EROSION CONTROL PLAN

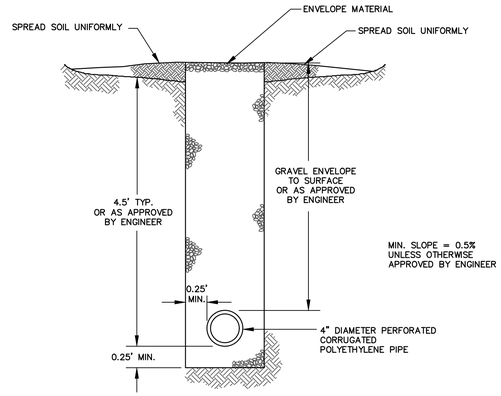
BLOCK 6

DESIGN ENGINEER: J. BUSHEY, M. BUENO

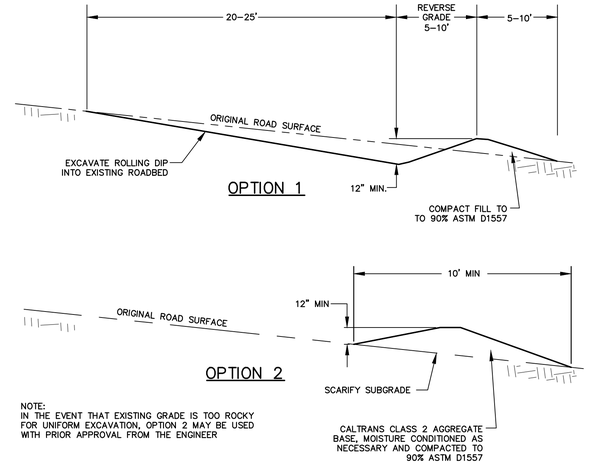
SCALE:	DRAWN BY:	DATE:	SHEET:
AS SHOWN	JCJ, RR	4-18-20	6 OF: 11



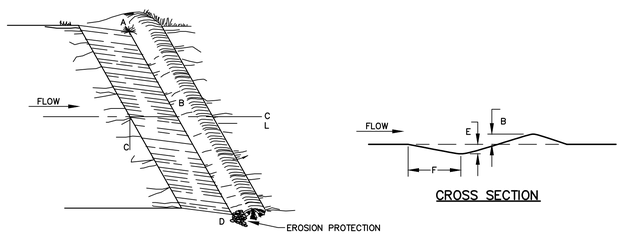
1/7 STRAW WATTLE INSTALLATION
N.T.S.



2/7 SUBSURFACE DRAINAGE PIPELINE
N.T.S.



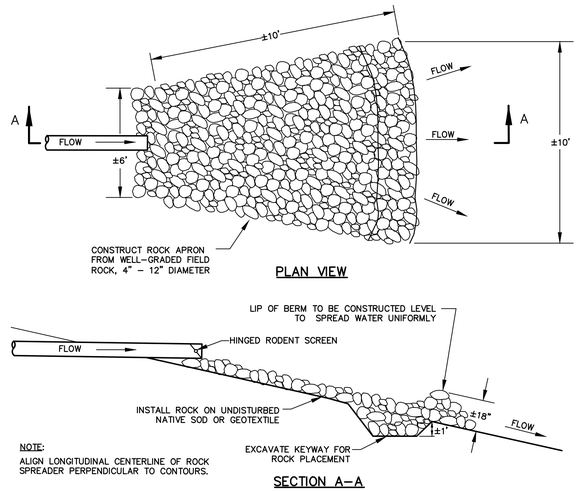
3/7 ROLLING DIP
N.T.S.



NOTES:

1. WATERBAR CONSTRUCTION FOR LITTLE OR NO TRAFFIC. SPECIFICATIONS ARE AVERAGE AND MAY BE ADJUSTED TO CONDITIONS.
2. A, TIE–IN TO BANK.
3. B, CROSS DRAIN BERM HEIGHT 4 TO 6 INCHES ABOVE THE ROAD.
4. C, ANGLE DRAIN 30 TO 45 DEGREES DOWNGRADE WITH ROAD CENTERLINE.
5. D, DRAIN OUTLET CUT 8 TO 16 INCHES INTO ROADBED.
6. E, DEPTH 4 TO 6 INCHES.
7. F, 3 TO 4 FEET.

4/7 WATERBAR
N.T.S.



NOTE:
ALIGN LONGITUDINAL CENTERLINE OF ROCK SPREADER PERPENDICULAR TO CONTOURS.

5/7 ROCK APRON
N.T.S.

REV. NO.	DESCRIPTION	BY	DATE
1	THIS DRAWING SUPERSEDES DRAWING 11711201A. RECONFIGURED DETAILS ON THIS SHEET.	JCJ	10/15/19
2	THIS DRAWING SUPERSEDES DRAWING 11711201B. UPDATED STRAW WATTLE DETAIL.	JCJ	4/15/20

REGISTERED PROFESSIONAL ENGINEER
JAMES R. RAMEY
No. 49931
EXPIRES: 9-30-20
Civil
STATE OF CALIFORNIA

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

JOB NO: 11711201
DWG. NO: 11711201C

DETAILS ON THIS SHEET:
STRAW WATTLE INSTALLATION
SUBSURFACE DRAINAGE PIPELINE
ROLLING DIP
WATERBAR
ROCK APRON

V. SATTUI WINERY INC.
HIBBARD RANCH

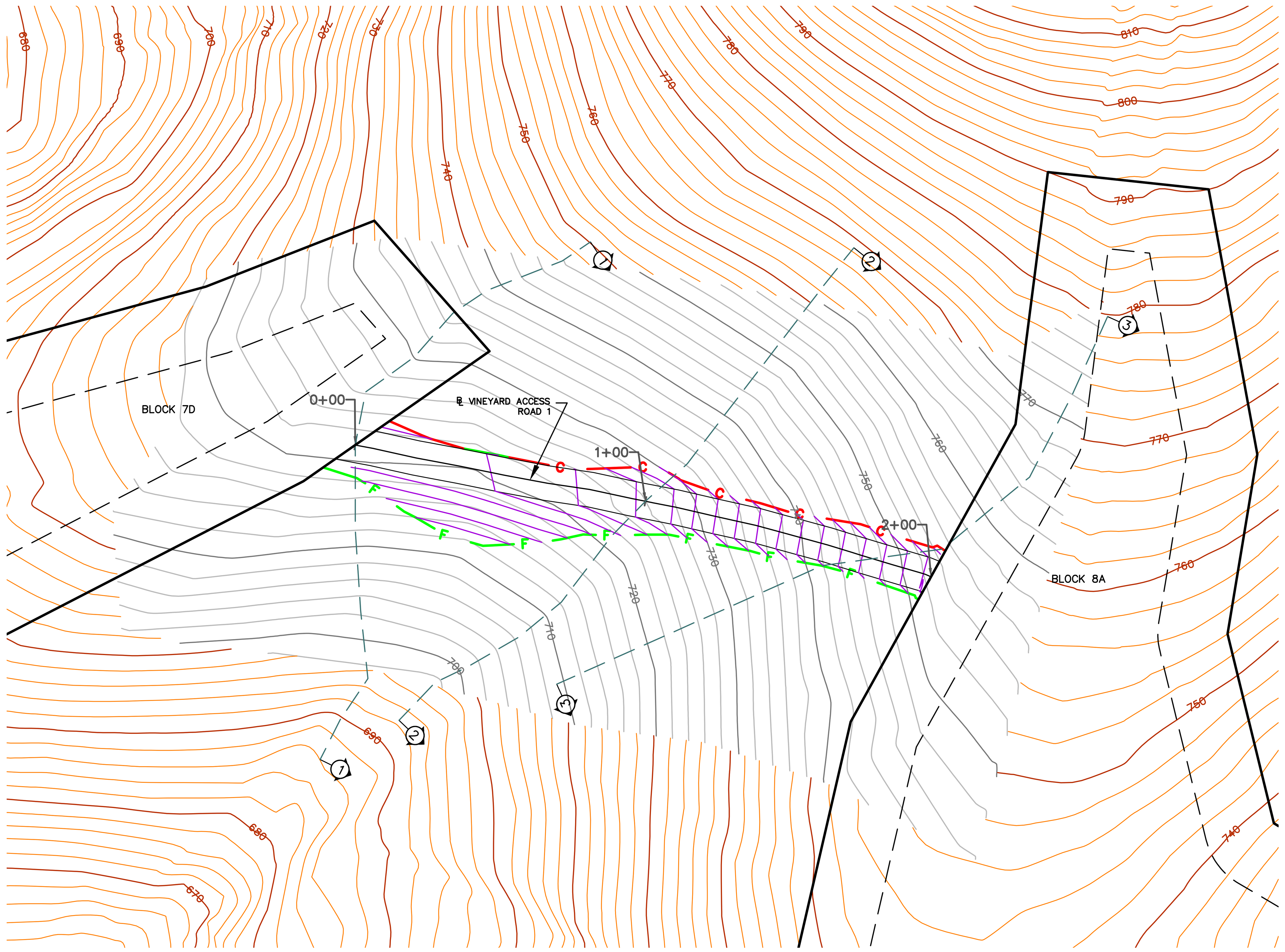
EROSION CONTROL PLAN

DETAILS

DESIGN ENGINEER: J. BUSHEY, M. BUENO

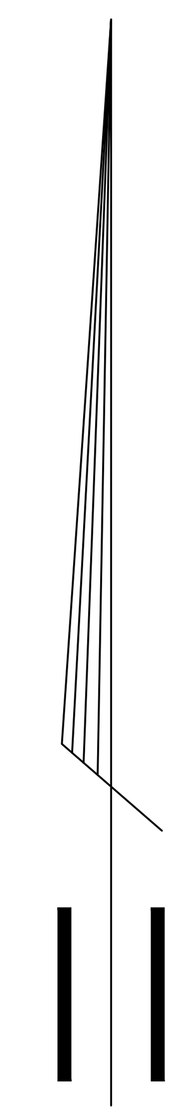
SCALE:	DRAWN BY:	DATE:	SHEET:
AS SHOWN	JCJ, RR	4–18–20	7 OF: 11

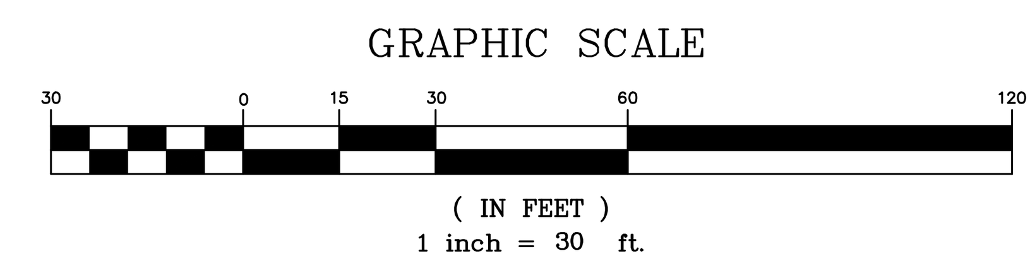
R:\SYNERGEN\11711201 Hibbard Ranch Trails I ECP\Drawings\11711201C.dwg, 7DETAILS 1, 4/18/2020 7:45:08 AM



TOPOGRAPHIC MAPPING PROVIDED BY AMERICAN AERIAL MAPPING INC, MAY 2017, 2' CONTOUR INTERVAL
SUPPLEMENTAL TOPOGRAPHIC MAPPING PROVIDED BY PPI ENGINEERING, JULY 2019, 2' CONTOUR INTERVAL

VINEYARD ACCESS ROAD 1 – PLAN VIEW





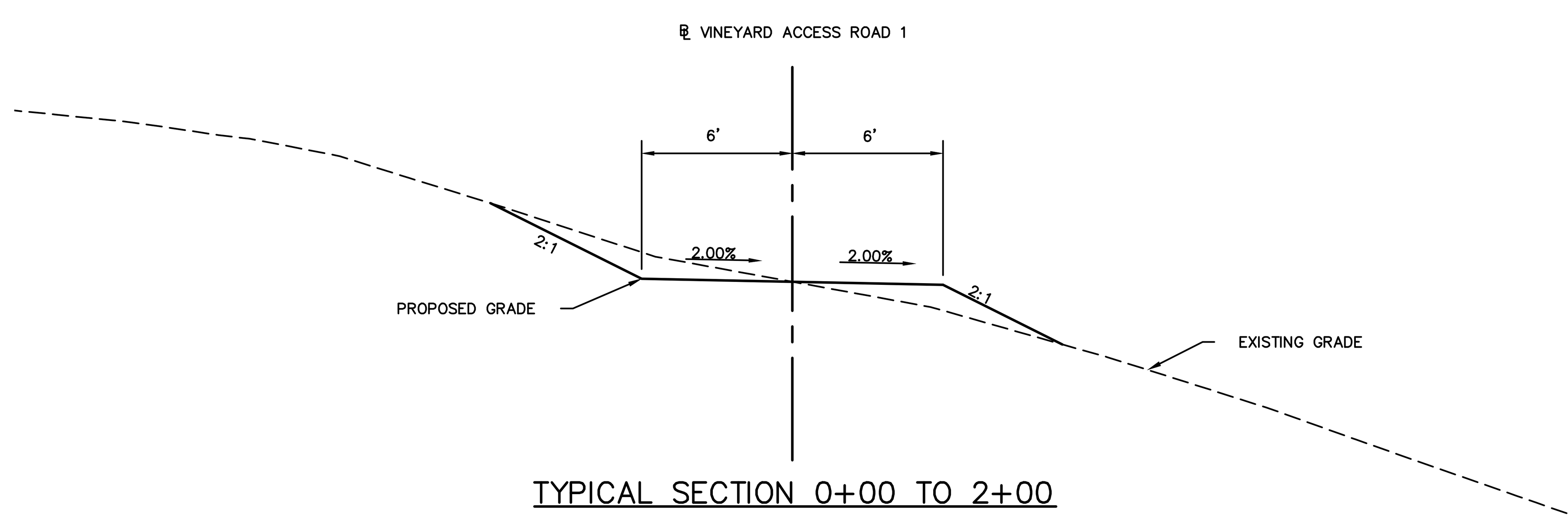
LEGEND

- AMERICAN AERIAL INDEX CONTOUR
- AMERICAN AERIAL INTERMEDIATE CONTOUR
- PPI ENGINEERING INDEX CONTOUR
- PPI ENGINEERING INTERMEDIATE CONTOUR
- PROPOSED CONTOUR, 2' CONTOUR INTERVAL
- EDGE OF PROPOSED ROADWAY
- SLOPE CROSS SECTION
- C — CUT LIMIT
- F — FILL LIMIT
- ℄ ROAD 1+00 2+00 — STATIONED ROADWAY BASELINE
- PROPOSED VINEYARD CLEARING LIMITS
- PROPOSED VINEYARD BLOCK BOUNDARY

NOTES:

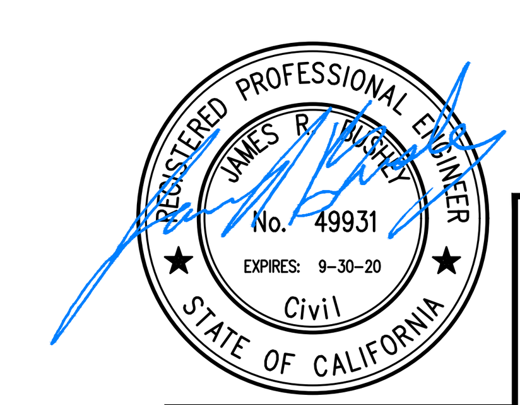
1. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED, STRAW WATTLES SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER IN THE FIELD AT TIME OF CONSTRUCTION. THE PERMANENT COVER CROP WILL BE MANAGED EACH YEAR SUCH THAT ANY AREAS WHICH HAVE LESS THAN 80 PERCENT VEGETATIVE COVER WILL BE RESEEDED AND MULCHED UNTIL ADEQUATE COVERAGE IS ACHIEVED. THE PERMANENT COVER CROP SHALL BE MOWED ONLY AND NOT DISKED.

2. AT LEAST 48 HOURS PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT AT 800-642-2444 TO LOCATE ANY EXISTING UTILITIES.



TYPICAL SECTION 0+00 TO 2+00

SCALE: 1" = 5'



REV. NO.	DESCRIPTION	BY	DATE
1	THIS DRAWING SUPERSEDES DRAWING 11711201A. ADDED ACCESS ROAD DESIGN DETAILS PER COMMENTS FROM NAPA COUNTY.	ALB	10/15/19
2	THIS DRAWING SUPERSEDES DRAWING 11711201B. NO CHANGES WERE MADE TO THIS SHEET.	JCJ	4/15/20

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

JOB NO: 11711201
DWG. NO: 11711201C

V. SATTUI WINERY INC.
HIBBARD RANCH

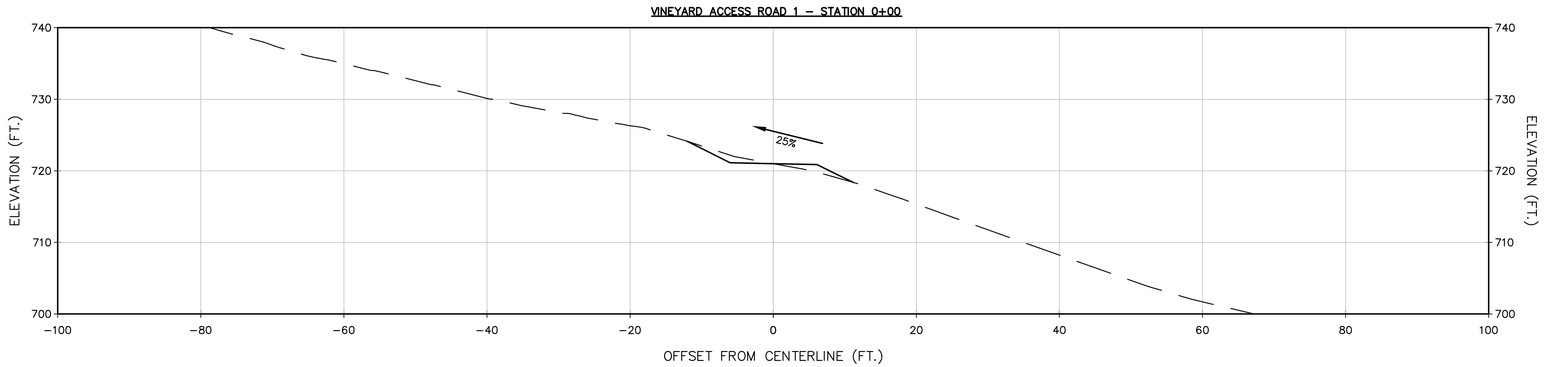
EROSION CONTROL PLAN

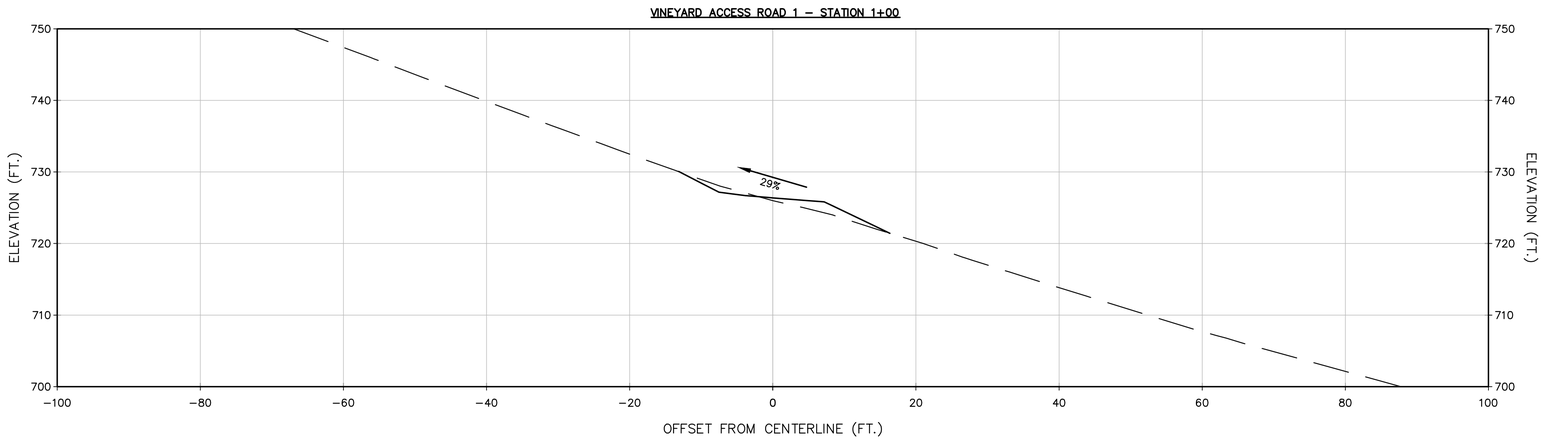
DETAILS – ACCESS ROAD 1

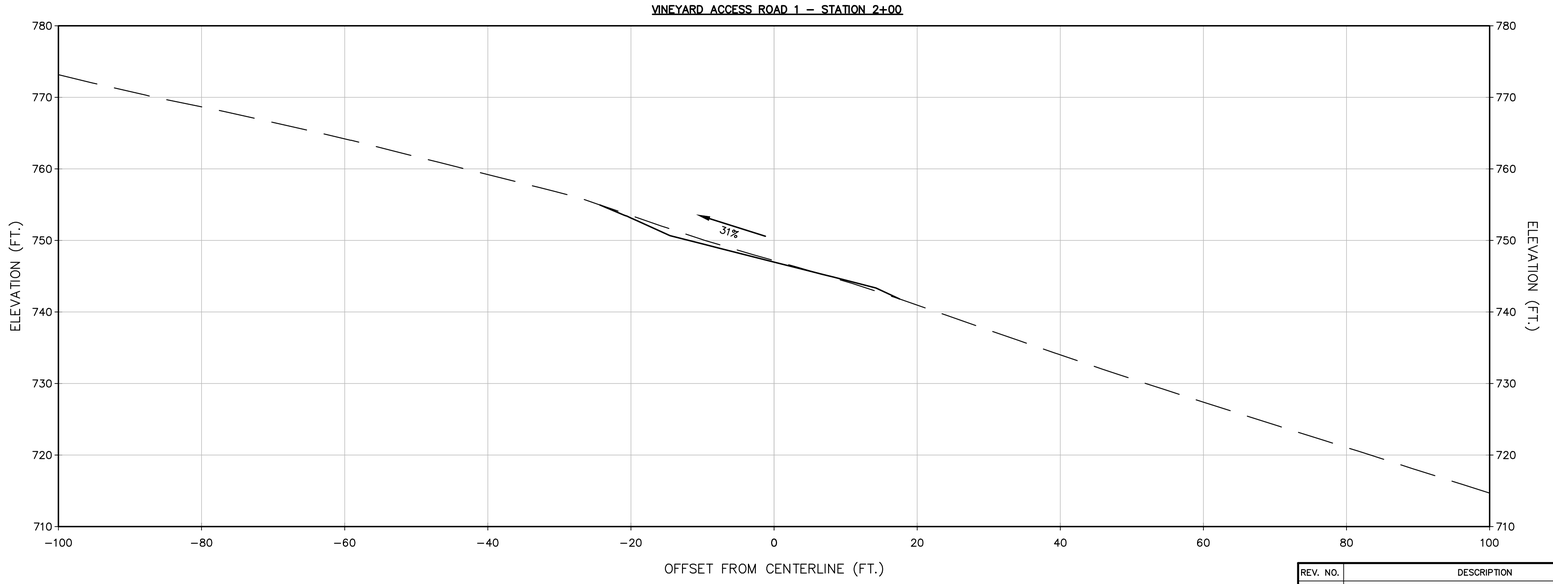
DESIGN ENGINEER: J. BUSHEY, M. BUENO

SCALE:	DRAWN BY:	DATE:	SHEET:
AS SHOWN	ALB	4-18-20	8 OF: 11

VINEYARD ACCESS ROAD 1 – CROSS SECTIONS







LEGEND

EXISTING GROUND

PROPOSED GRADE

X% EXISTING SLOPE BETWEEN OUTER CATCHPOINTS

VINEYARD ACCESS ROAD 1 – SLOPE TABLE

TOTAL LENGTH (FT.)	STA.	SLOPE (%)	AVERAGE SLOPE (%)
200	0+00	25%	28%
	1+00	29%	
	2+00	31%	

REGISTERED PROFESSIONAL ENGINEER
JAMES C. JACKSON
No. 49931
EXPIRES: 9-30-20
Civil
STATE OF CALIFORNIA

REV. NO.	DESCRIPTION	BY	DATE
1	THIS DRAWING SUPERSEDES DRAWING 11711201A. ADDED ACCESS ROAD DESIGN DETAILS PER COMMENTS FROM NAPA COUNTY.	ALB	10/15/19
2	THIS DRAWING SUPERSEDES DRAWING 11711201B. NO CHANGES WERE MADE TO THIS SHEET.	JCJ	4/15/20

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

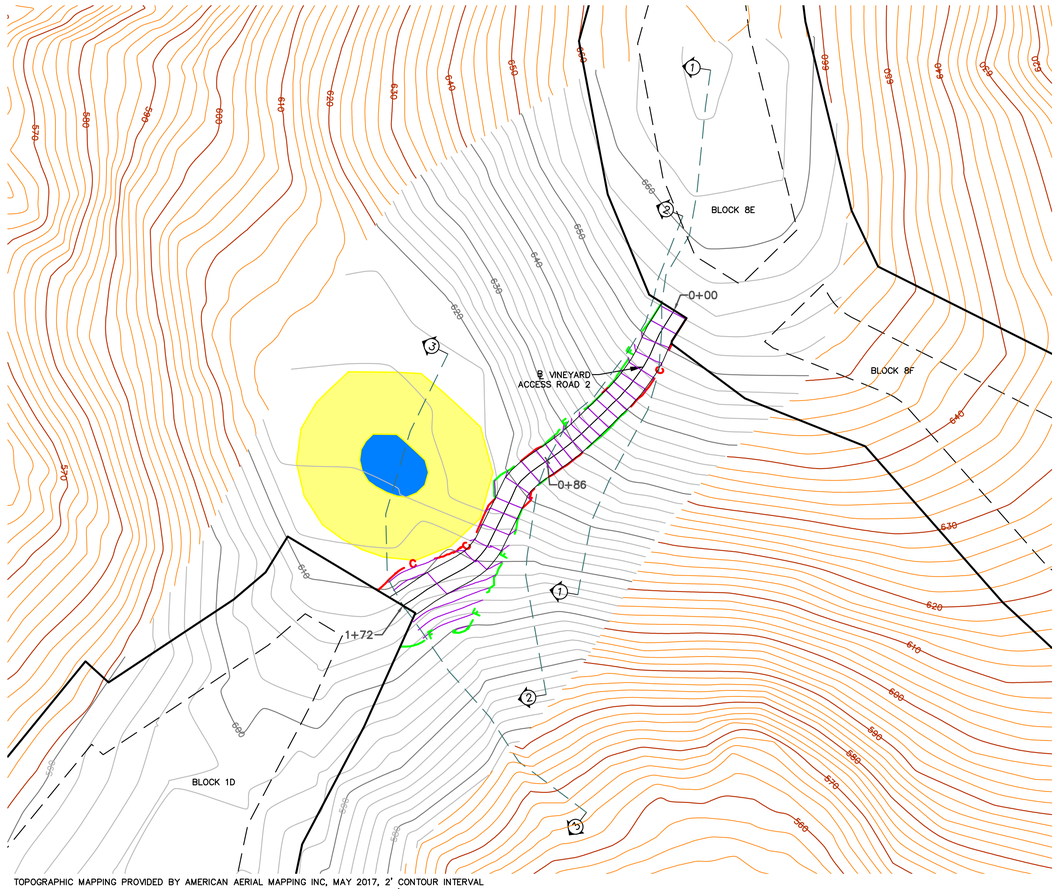
JOB NO: 11711201
DWG. NO: 11711201C

V. SATTUI WINERY INC.
HIBBARD RANCH
EROSION CONTROL PLAN
DETAILS – ACCESS ROAD 1

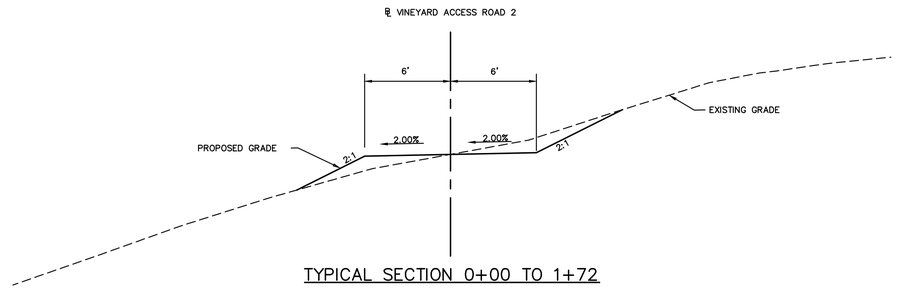
DESIGN ENGINEER: J. BUSHEY, M. BUENO

SCALE:	DRAWN BY:	DATE:	SHEET:
1"=10'	ALB	4-18-20	9 OF: 11

R:\SVWIEN\11711201 Hibbard Ranch Track 1\ECP\Drawings\11711201C.dwg, NORTHERN ROAD PROFILE (1), 4/18/2020 7:44:07 AM



TOPOGRAPHIC MAPPING PROVIDED BY AMERICAN AERIAL MAPPING INC, MAY 2017, 2' CONTOUR INTERVAL
SUPPLEMENTAL TOPOGRAPHIC MAPPING PROVIDED BY PPI ENGINEERING, JULY 2019, 2' CONTOUR INTERVAL

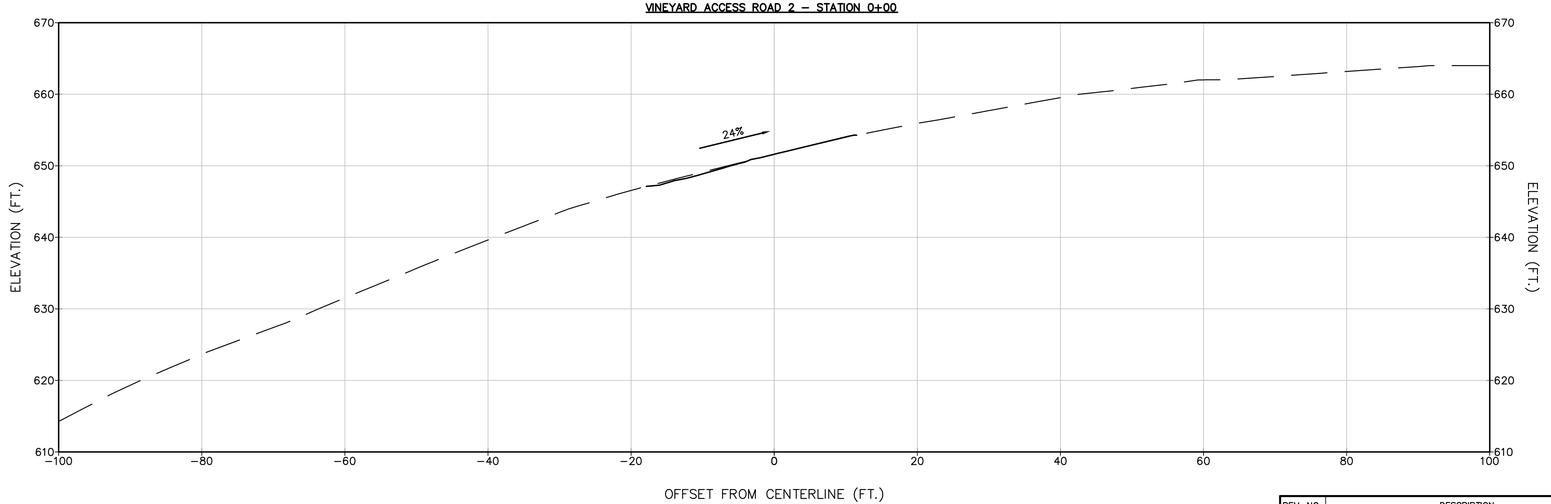


TYPICAL SECTION 0+00 TO 1+72

SCALE: 1" = 5'

VINEYARD ACCESS ROAD 2 – PLAN VIEW

VINEYARD ACCESS ROAD 2 – STATION 0+00



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

LEGEND

- AMERICAN AERIAL INDEX CONTOUR
- AMERICAN AERIAL INTERMEDIATE CONTOUR
- PPI ENGINEERING INDEX CONTOUR
- PPI ENGINEERING INTERMEDIATE CONTOUR
- PROPOSED CONTOUR, 2' CONTOUR INTERVAL
- WETLAND, MAPPED BY WRA
- 26' UNDISTURBED FILTER STRIP
- EDGE OF PROPOSED ROADWAY
- SLOPE CROSS SECTION
- C — CUT LIMIT
- F — FILL LIMIT
- ℄ ROAD 0+86 1+72 — STATIONED ROADWAY BASELINE
- PROPOSED VINEYARD CLEARING LIMITS
- PROPOSED VINEYARD BLOCK BOUNDARY

NOTES:
1. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED, STRAW WATTLES SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER IN THE FIELD AT TIME OF CONSTRUCTION. THE PERMANENT COVER CROP WILL BE MANAGED EACH YEAR SUCH THAT ANY AREAS WHICH HAVE LESS THAN 80 PERCENT VEGETATIVE COVER WILL BE RESEEDED AND MULCHED UNTIL ADEQUATE COVERAGE IS ACHIEVED. THE PERMANENT COVER CROP SHALL BE MOWED ONLY AND NOT DISKED.

3. AT LEAST 48 HOURS PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT AT 800-642-2444 TO LOCATE ANY EXISTING UTILITIES.

REGISTERED PROFESSIONAL ENGINEER
JAMES A. BUSHEY
No. 49931
EXPIRES: 9-30-20
Civil
STATE OF CALIFORNIA

REV. NO.	DESCRIPTION	BY	DATE
1	THIS DRAWING SUPERSEDES DRAWING 11711201A. ADDED ACCESS ROAD DESIGN DETAILS PER COMMENTS FROM NAPA COUNTY.	ALB	10/15/19
2	THIS DRAWING SUPERSEDES DRAWING 11711201B. NO CHANGES WERE MADE TO THIS SHEET.	JCJ	4/15/20

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

JOB NO: 11711201
DWG. NO: 11711201C

V. SATTUI WINERY INC.
HIBBARD RANCH

EROSION CONTROL PLAN

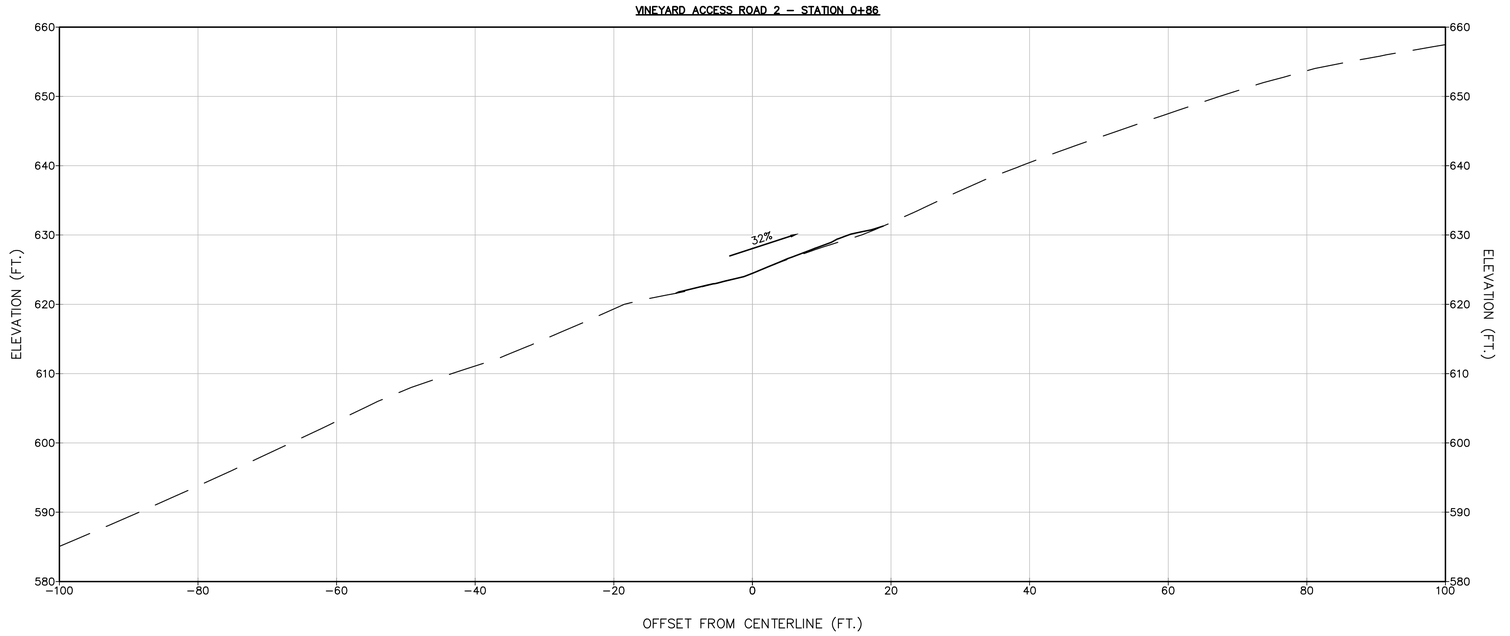
DETAILS – ACCESS ROAD 2

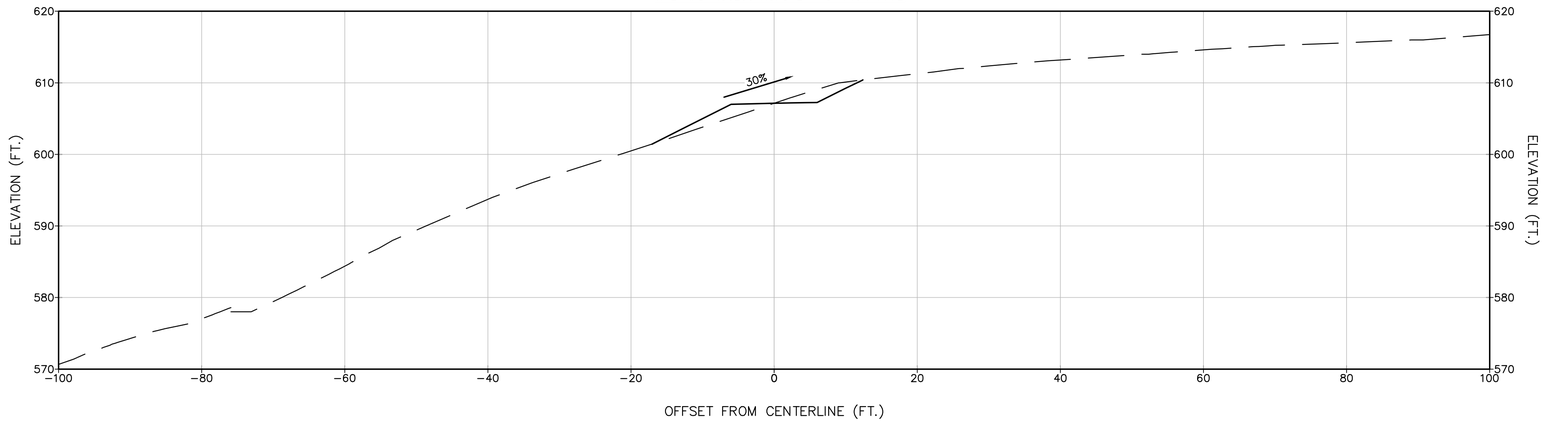
DESIGN ENGINEER: J. BUSHEY, M. BUENO

SCALE:	DRAWN BY:	DATE:	SHEET:
AS SHOWN	ALB	4-18-20	10 OF: 11

R:\SVNWIRE\11711201 Hibbard Ranch\Task 1 ECP\Drawings\11711201C.dwg, SOUTHERN ROAD PLAN, 4/18/2020 7:43:08 AM

VINEYARD ACCESS ROAD 2 – CROSS SECTIONS





LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- X% — EXISTING SLOPE BETWEEN OUTER CATCHPOINTS

VINEYARD ACCESS ROAD 2 – SLOPE TABLE

TOTAL LENGTH (FT.)	STA.	SLOPE (%)	AVERAGE SLOPE (%)
172	0+00	24%	29%
	0+86	32%	
	1+72	30%	

REV. NO.	DESCRIPTION	BY	DATE
1	THIS DRAWING SUPERSEDES DRAWING 11711201A. ADDED ACCESS ROAD DESIGN DETAILS PER COMMENTS FROM NAPA COUNTY.	ALB	10/15/19
2	THIS DRAWING SUPERSEDES DRAWING 11711201B. NO CHANGES WERE MADE TO THIS SHEET.	JCJ	4/15/20

REGISTERED PROFESSIONAL ENGINEER
JAMES C. JOHNSON
No. 49931
EXPIRES: 9-30-20
Civil
STATE OF CALIFORNIA

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

JOB NO: 11711201
DWG. NO: 11711201C

V. SATTUI WINERY INC.
HIBBARD RANCH
EROSION CONTROL PLAN
DETAILS – ACCESS ROAD 2

DESIGN ENGINEER: J. BUSHEY, M. BUENO

SCALE:	DRAWN BY:	DATE:	SHEET:
1"=10'	ALB	4-18-20	11 OF: 11

R:\SVWINERY\11711201 Hibbard Ranch Track I\EXP\Drawings\11711201C dwg, SATTUIERS ROAD PROFILE (1), 4/18/2020 7:42:42 AM