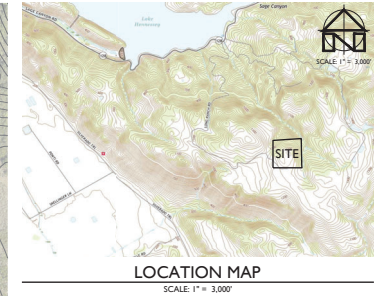
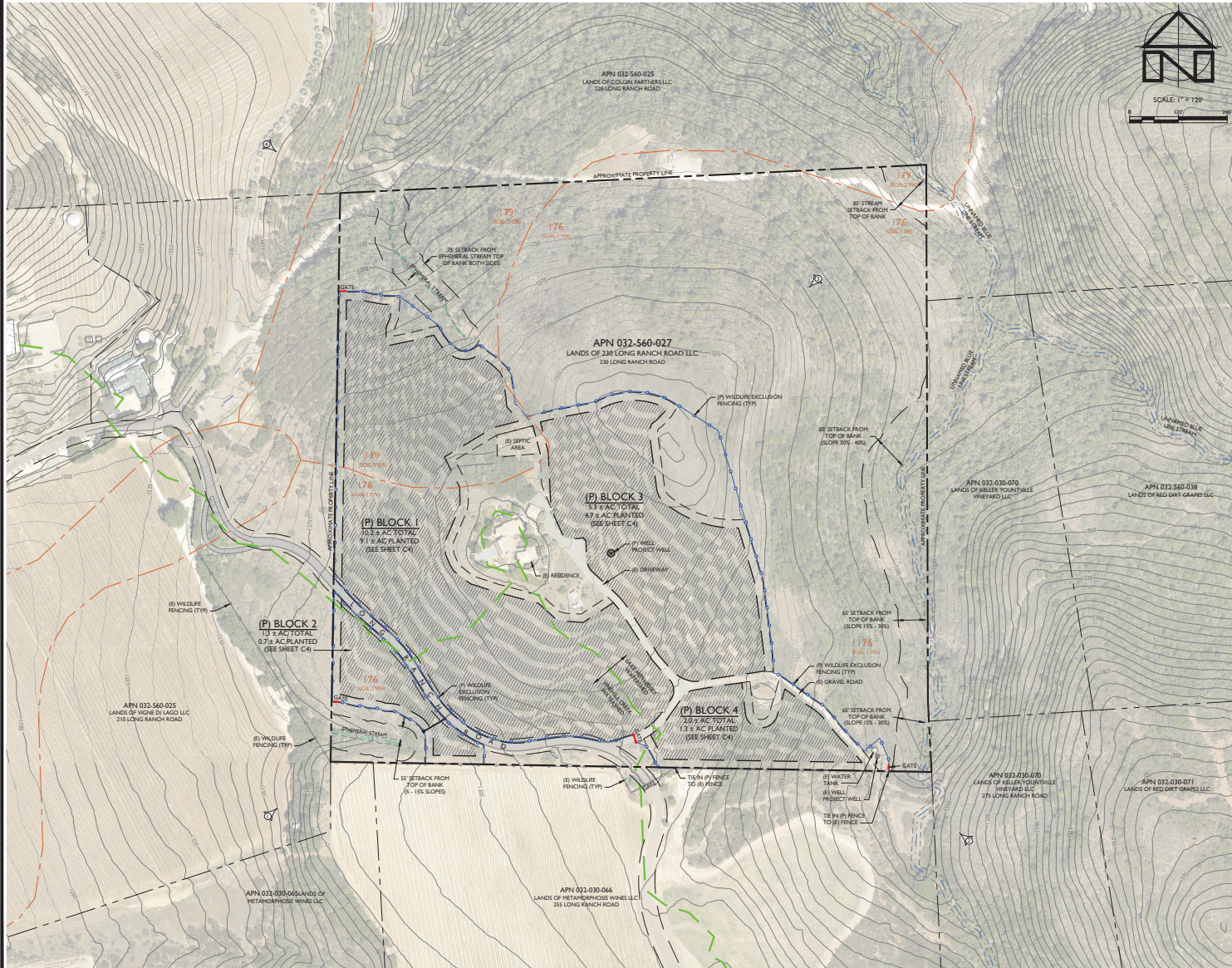


230 LONG RANCH ROAD LLC

VINEYARD DEVELOPMENT EROSION CONTROL PLAN



PROJECT INFORMATION:

PROPERTY OWNER & APPLICANT:
230 LONG RANCH ROAD LLC
230 LONG RANCH ROAD
ST. HELENA, CA 94574

SITE ADDRESS:
230 LONG RANCH ROAD
SAINT HELENA, CA 94574

ASSESSOR'S PARCEL NUMBER:
032-560-027

PARCEL SIZE:
48.4 ± ACRES

PROJECT SIZE:
18.8 ± ACRES TOTAL DISTURBED AREA
15.8 ± ACRES PLANTED

ZONING:
AGRICULTURAL WATERSHED (AW)
DOMESTIC & IRRIGATION WATER SOURCE:
WELL

SHEET INDEX:

- C1 OVERALL SITE PLAN
- C2 NOTES AND ABBREVIATIONS
- C3 SLOPE DETERMINATION EXHIBIT
- C4 VINEYARD EROSION CONTROL PLAN
- C5 DETAILS

PURPOSE STATEMENT:

THE PURPOSE OF THIS PROJECT IS TO PLANT FOUR NEW VINEYARD BLOCKS ON THE SUBJECT PARCEL.

FLOOD HAZARD NOTE:

ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP NUMBER 460500010E, EFFECTIVE SEPTEMBER 26, 2008, THE PROJECT SITE IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA.

LEGEND:

- APPROXIMATE PROPERTY LINE (SUBJECT PARCEL)
- APPROXIMATE PROPERTY LINE (ADJACENT PARCEL)
- VINEYARD CLEARING LIMITS / VINEYARD AVENUE
- LIMIT OF VINEYARD BLOCK
- BLUE LINE STREAM
- EPHEMERAL STREAM
- SOIL TYPE BOUNDARY
- COUNTY DERIVED WATERSHED BOUNDARY
- (E) WILDLIFE FENCING
- (P) WILDLIFE EXCLUSION FENCING
- (P) GATE
- PHOTO LOCATION AND DIRECTION

SOIL TYPE LEGEND:

- 176 ROCK OUTCROP-HAMBRIGHT COMPLEX, 50 TO 75 PERCENT SLOPES
- 179 SOBRIANTE LOAM, 30 TO 50 PERCENT SLOPES

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

SITE PHOTOGRAPH NOTES:

REPRESENTS APPROXIMATE LOCATION AND DIRECTION OF ISOMETRIC VIEW OBTAINED FROM GOOGLE EARTH IMAGERY DATED AUGUST 25, 2023. SEE PHOTOGRAPHIC DOCUMENTATION OF EXISTING SITE CONDITIONS FOR THE 230 LONG RANCH ROAD LLC VINEYARD DEVELOPMENT EROSION CONTROL PLAN FOR PHOTOGRAPHS AND DESCRIPTIONS.

APPLIED

INCORPORATED
2140 Jefferson Street, Suite 210
Napa, CA 94559
(707) 226-1968 | www.appliedcivil.com

230 LONG RANCH ROAD LLC

VINEYARD DEVELOPMENT EROSION CONTROL PLAN
OVERALL SITE PLAN

PREPARED UNDER THE
DIRECTION OF:



DRAWN BY:
PowerCAD LLC

CHECKED BY:
MBM

DATE:
APRIL 19, 2024

REVISIONS:
4/19/2024 NHT/MS
PERMIT SUBMITTAL

JOB NUMBER:
23-105

FILE:
23-105/CF-OSP/DWG

ORIGINAL SIZE:
24" X 36"

SHEET NUMBER:

C1

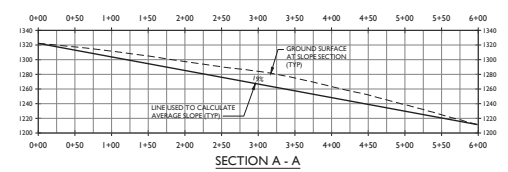
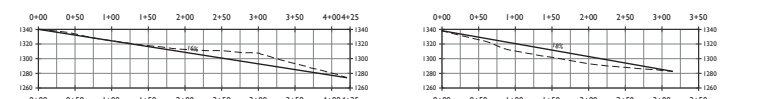
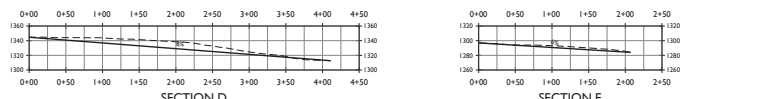
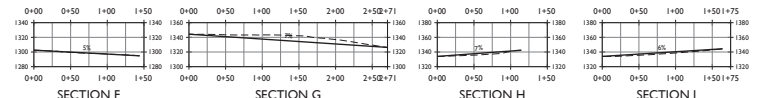
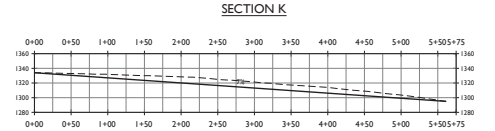
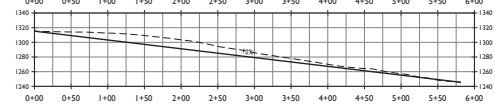


LEGEND:

---	APPROXIMATE PROPERTY LINE (SUBJECT PARCEL)
---	APPROXIMATE PROPERTY LINE (ADJACENT PARCEL)
---	VINEYARD CLEARING LIMITS / VINEYARD AVENUE
---	LIMIT OF VINEYARD BLOCK
○ --- ○	SLOPE SECTION. SEE TABLE, THIS SHEET.
■	SLOPES GREATER THAN 30% (0.4 ± AC)

VINEYARD SLOPE SECTIONS

BLOCK 1	
A - A	19%
B - B	16%
C - C	18%
D - D	8%
BLOCK 2	
E - E	6%
F - F	5%
BLOCK 3	
G - G	7%
H - H	7%
I - I	6%
J - J	7%
BLOCK 4	
K - K	12%
AVERAGE	9%



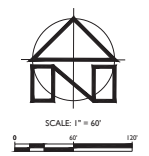
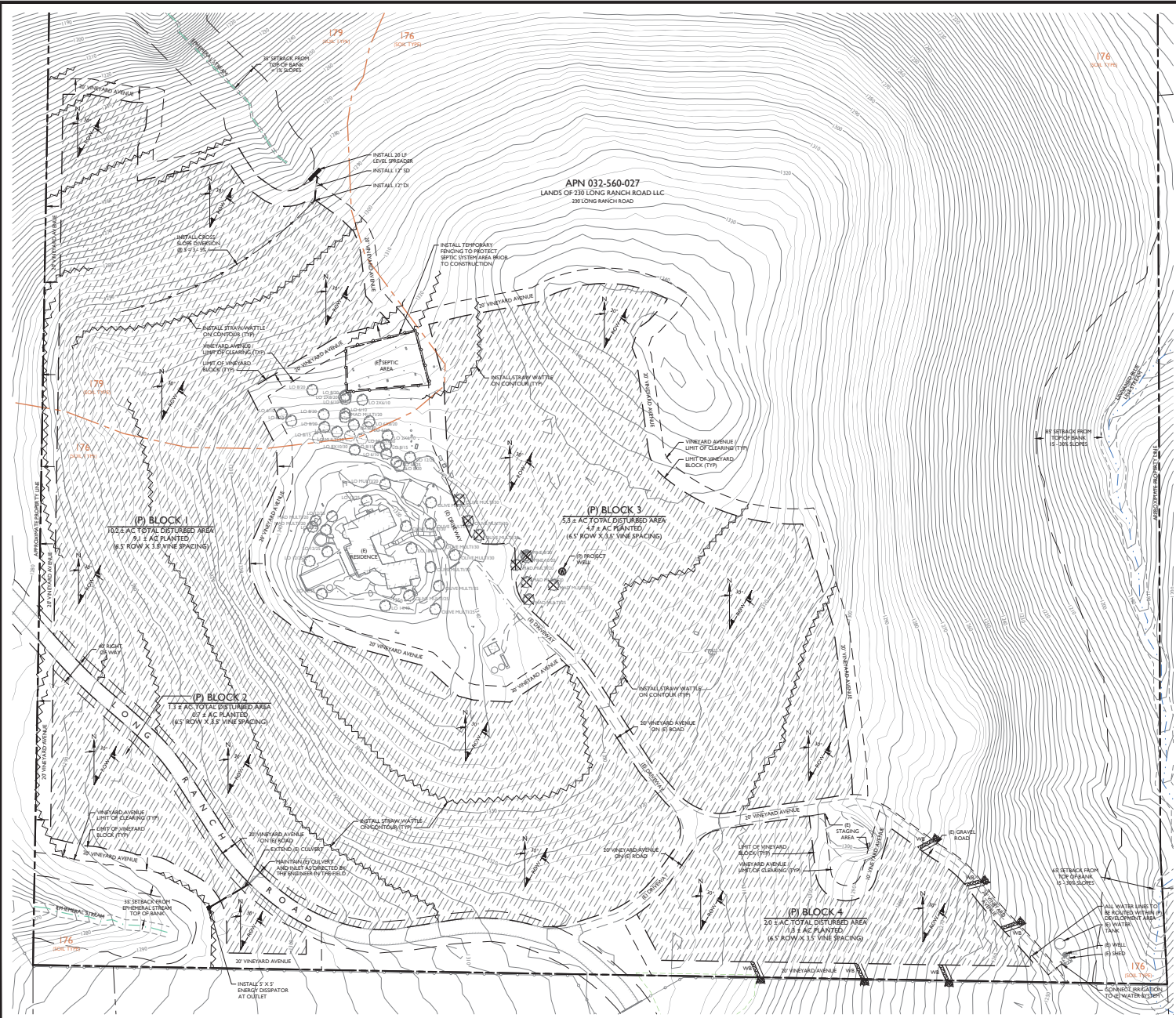
SLOPE DETERMINATION SECTIONS
SCALE: 1" = 80'

PREPARED UNDER THE
DIRECTION OF:



DRAWN BY:
PowerCAD LLC
CHECKED BY:
MRM
DATE:
APRIL 19, 2024
REVISIONS: BY:
4/19/2024 NHTMMS
PERMIT SUBMITTAL

JOB NUMBER:
23-105
FILE:
23105ECP-SIDE.DWG
ORIGINAL SIZE:
24" X 36"
SHEET NUMBER:



- NOTES:**
1. ALL CLEARING LIMITS SHALL BE MARKED BY THE ENGINEER OR SURVEYOR PRIOR TO CONSTRUCTION AND TEMPORARY CONSTRUCTION FENCING (ORANGE FENCING OR EQUIVALENT) SHALL BE INSTALLED ALONG THE CLEARING LIMITS PRIOR TO ANY LAND PREPARATION ACTIVITIES. THE TEMPORARY CONSTRUCTION FENCING SHALL BE ADJUSTED AROUND THE CANOPY OF ANY TREES THAT ARE TO REMAIN OUTSIDE OF THE CLEARING LIMITS WITH CANOPY THAT OVERHANGS INTO THE CLEARING LIMITS TO KEEP LAND PREPARATION ACTIVITIES OUTSIDE OF THE TREE CANOPY AREA.
 2. ALL STREAM SETBACKS SHALL BE VERIFIED BY THE ENGINEER PRIOR TO CONSTRUCTION.
 3. TRACK WALK ENTIRE DISTURBED AREA. SEE SURFACE ROUGHENING DETAIL SHEET CS.
 4. ALL TEMPORARY STAGING, STOCKPILE AND PARKING AREAS SHALL BE WITHIN THE PROPOSED DEVELOPMENT AREAS. NO STAGING, STOCKPILING, PARKING OR OTHER LAND DISTURBANCE SHALL OCCUR OUTSIDE OF THE PROPOSED DEVELOPMENT AREAS.
 5. ALL EROSION CONTROL MATERIALS SHALL BE FREE OF PLASTIC MONOFILAMENT SO THAT SHALL WILDLIFE WILL NOT BECOME ENTANGLED.

- LEGEND:**
- APPROXIMATE PROPERTY LINE (SUBJECT PARCEL)
 - - - APPROXIMATE PROPERTY LINE (ADJACENT PARCEL)
 - - - VINEYARD CLEARING LIMITS / VINEYARD AVENUE
 - - - LIMIT OF VINEYARD BLOCK
 - - - VINE ROWS & ROW DIRECTION
 - - - BLUE LINE STREAM
 - - - EPHEMERAL STREAM
 - - - SOIL TYPE BOUNDARY
 - - - STRAW WATTLE SEDIMENT BARRIER
 - - - TEMPORARY CONSTRUCTION FENCE
 - - - WATERBAR
 - - - ROCK ENERGY DISSIPATOR

- SOIL TYPE LEGEND:**
- 176 ROCK OUTCROP/HAMBRIGHT COMPLEX, 50 TO 75 PERCENT SLOPES
 - 179 SOBRANTE LOAM, 30 TO 50 PERCENT SLOPES
- SOIL TYPE BOUNDARIES SHOWN ON THIS MAP ARE BASED ON THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM DATA AND SHOULD BE CONSIDERED APPROXIMATE.

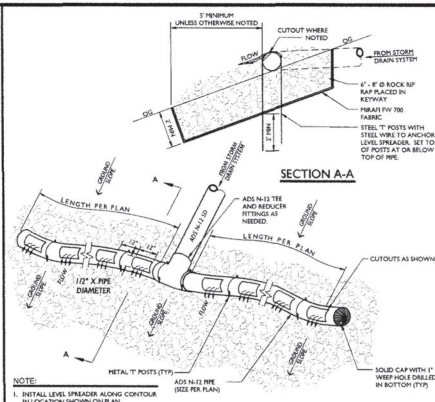
APPLIED

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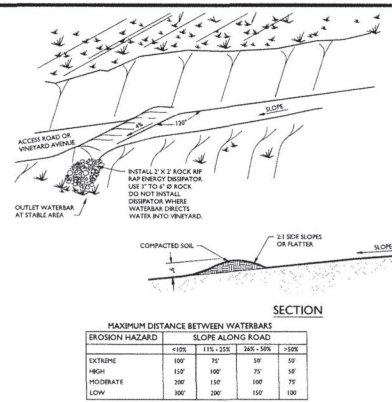
230 LONG RANCH ROAD LLC
VINEYARD DEVELOPMENT EROSION CONTROL PLAN
VINEYARD EROSION CONTROL PLAN

PREPARED UNDER THE DIRECTION OF

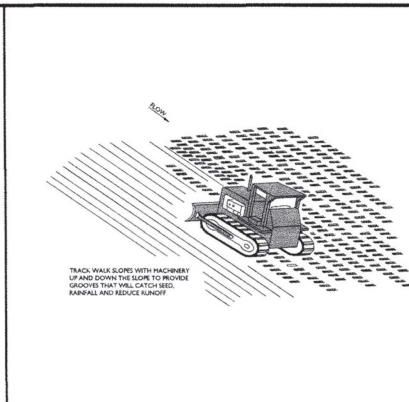
DRAWN BY: PowerCAD LLC
CHECKED BY: MBM
DATE: APRIL 19, 2024
REVISIONS: BY: 4/19/2024 NHT/MS PERMIT SUBMITTAL
JOB NUMBER: 23-105
FILE: 23-105/EC/PLAN.DWG
ORIGINAL SIZE: 24" X 36"
SHEET NUMBER: C4 OF 5



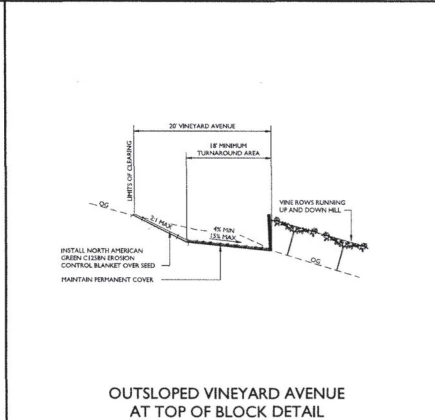
LEVEL SPREADER DETAIL



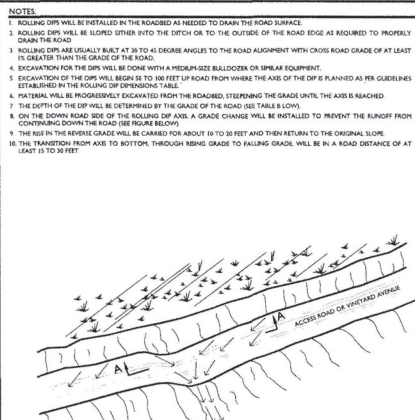
WATERBAR DETAIL



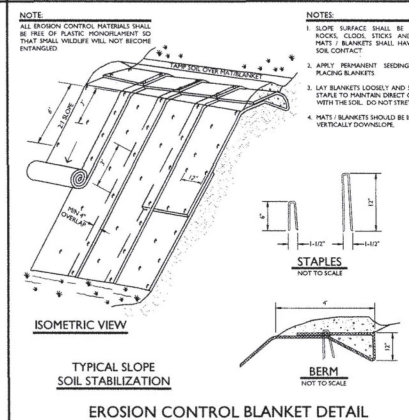
SURFACE ROUGHENING DETAIL



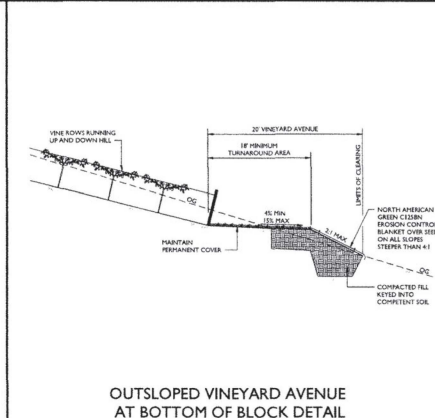
OUTSLOPED VINEYARD AVENUE AT TOP OF BLOCK DETAIL



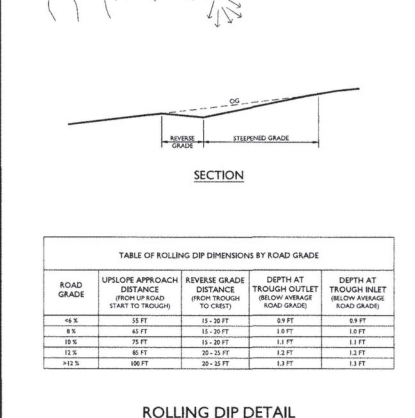
ROLLING DIP DETAIL



EROSION CONTROL BLANKET DETAIL



OUTSLOPED VINEYARD AVENUE AT BOTTOM OF BLOCK DETAIL



FIBER ROLL / WATTLE SEDIMENT BARRIER DETAIL



230 Long Ranch Road LLC

Vineyard Development Erosion Control Plan

Erosion Control Plan Narrative

- I. *The nature and purpose of all/any land clearing, grading or earthmoving activity, the amount of cut & fill, the location of spoils storage and disposal areas, the total number of acres of grading involved including but not limited to roads, vineyards, avenues, trenching for irrigation or pipes, reservoirs, wells, water tanks, septic systems, etc. Indicate the acres of land clearing, grading or earthmoving activity that will occur on 30% or greater slopes. (Note: slopes shall be calculated in whole percent)*

The project site is located at 230 Long Ranch Road in Napa County, California (Napa County APN 032-560-027). Access to the project area is via an existing paved private driveway (Long Ranch Road) that connects to State Route 128 (Sage Canyon Road) near the Lake Hennessey boat ramp parking lot. The property is located approximately 2.6 road miles south of the intersection of Long Ranch Road and State Route 128.

The purpose of the proposed land clearing, grading and earthmoving is to prepare the project area for planting with new vineyard. Following is a list of planned land preparation activities:

- Clearing and grubbing of existing vegetation
- Re-contouring and land smoothing to promote sheet flow
- Ripping, rock breaking and blasting as needed to fracture subsoils and rock to a depth of approximately 24 to 48 inches to prepare soil for planting and to incorporate soil amendments
- Processing of rock to be used on new vineyard roads and other existing vineyard roads on adjacent properties
- Mechanical and hand rock raking to remove loose rocks from the ground surface
- Discing and harrowing to prepare seedbed for vegetative erosion control measures
- Installation of erosion control features

Grading within the project area will be the minimum amount needed to smooth out the existing ground surface and create smooth slopes to promote sheet flow and to install the proposed runoff and erosion control measures. Cuts and fills will be moderate and are expected to average from 0 to 2 feet. The estimated quantity of grading is approximately 2,000 cubic yards of cut and 2,000 cubic yards of fill. An earthwork balance will be achieved onsite. Import and/or export of soil material is not planned however, soil amendments will be imported and incorporated into the project area as needed to improve soil tilth and thereby support vine and cover crop growth.

All temporary debris, vegetation, soil and soil amendment stockpiles and storage areas, if needed, will be located within the proposed vineyard project area. No long-term stockpiles of rock or soil are anticipated. It is planned that all rock will be disposed of within the proposed vineyard footprint or adjacent properties either by being used in the new downslope vineyard avenue area to create a level bench, being buried or being crushed and used to line existing vineyard avenues and access roads on the property and adjacent properties owned by others.

All access to the project area will be via existing driveways. No new roads are required to access the proposed vineyard development area.

The total disturbed area for the vineyard development project is $18.8 \pm$ acres. The total disturbed area includes the area to be planted with vines and the area used for perimeter avenues and connecting avenues that provide access to the vineyard blocks for farming equipment and incidental disturbance for installation of erosion control features. The total area to be planted with vines within the $18.8 \pm$ acre project area is $15.8 \pm$ acres.

Stream and drainage course setbacks will be provided in accordance with the Napa County Conservation Regulations.

The proposed vineyard development consists of four vineyard blocks. All four blocks are in close proximity to each other but are separated by existing driveways and residential development areas. The block will have a row spacing of 6.5 feet and vine spacing along the row of 3.5 feet for an average vine density of 1,915 vines per acre and a total of approximately 30,257 vines.

The details of the proposed vineyard development are shown on the 230 Long Ranch Road LLC Vineyard Development Erosion Control Plan prepared by Applied Civil Engineering Incorporated.

2. *Comprehensive description of existing site conditions, including topography, vegetation (including under-story and canopy cover), and soils. Provide extent of tree canopy covered and shrub and brush without a tree canopy covered areas in acres for each parcel. Identify and indicate the project boundaries in watersheds, including municipal watersheds, and in the water deficient area. The plan preparer is required to visit the site and the narrative must include the date, purpose, and persons making each site visit. The description shall verify the source or validity of the topographic map. Wide angle or panoramic photographs documenting existing site conditions shall be provided. A photo location map indicating the date of the site visit and by whom it was made shall accompany such documentation.*

Topography:

The project area is located on a ridge in the Pritchard Hill area just east of the Napa Valley and approximately seven miles southeast from downtown St. Helena in Napa County, California (Latitude = 38.46684° N & Longitude = 122.34490° W). Topography on the

property varies widely and is characterized by gentle to steep slopes ranging from less than 5% to more than 30% across the property.

Average slopes within the proposed vineyard development area are gentle to moderate and range from 5% to 19% with an overall average slope of 10%. Slopes were determined using topographic data obtained from the Napa County Geographic Information System database and the slope transect method in several representative locations in the proposed development area. Approximately 0.4 acres of isolated areas within the project area exceeds 30% natural ground slope.

Vegetation:

The Calveg designations for the subject parcel were obtained from the Napa County GIS database and are as follows:

- CQ – Northern Mixed Chaparral
- HG – Annual Grass/Forbs
- NX – Mixed Hardwoods
- QA – Coast Live Oak

Our visual observation of onsite vegetation in the vicinity of the project area is consistent with the Calveg designations. A detailed assessment of vegetation within the parcel and subject project area was prepared by Montrose Environmental. According to the report by Montrose Environmental there are sensitive plant species that occur within the property. The project has been carefully designed to preserve a large majority of the sensitive plants on the property to ensure there is no significant environmental impact. Please refer to the report prepared by Montrose Environmental for additional information.

Since a large portion of the project area is located in the Lake Hennessey watershed the project is subject to vegetation retention requirements including 70% of vegetation canopy cover (trees) and 40% of understory (grass, brush) per Napa County Code 18.108.027. According to the Montrose Environmental BRA, Section 5.6 the project retains 59% of the vegetation understory that existed in 1993 which is well in excess of the 40% requirement. Furthermore, all of the native vegetation on the property qualifies as understory and therefore the project is not subject to vegetation canopy cover (trees) retention requirements.

Watershed:

The project site is located on a minor topographic ridge and saddle area on the east side of the Napa Valley. Rainfall runoff from the northern portion of the project area is in the Lake Hennessey Watershed and the remainder of the project area is in the Napa River watershed.

No changes in runoff patterns are proposed as part of this project. All existing drainage patterns will be maintained.

The subject parcel is partially located within a municipal drinking water supply watershed (Lake Hennessey) as noted above.

The subject parcel is not located within the Milliken-Sarco-Tulocay groundwater deficient area.

Site Visits & Photograph Documentation:

Representatives from Applied Civil Engineering Incorporated have visited the site several times. The purpose of the site visits was to review existing site conditions and to verify the general validity of the topographic mapping for this project that was obtained from the Napa County GIS database.

In the course of the project Google Earth was also utilized to further assess existing site conditions. Several isometric photos of the project area were obtained from Google Earth to document existing site conditions. The photographs are presented in the Photographic Documentation of Existing Site Conditions for the 230 Long Ranch Road LLC Vineyard Development Erosion Control Plan.

3. *All natural and man-made features on-site including but not limited to, streams, watercourses (drainage, channels, etc.), wetlands, riparian habitat, lakes, reservoirs, roads, water tanks, septic systems, reservoirs, ponds, etc. Indicate which ones may be affected by the proposed activity. For blue line and County-definitional streams indicate top, toe, and slope of bank, channel depth, and existing and proposed setback conditions. The entire length of blue line streams & 41 County-named streams on the parcel(s) shall be included in photo documentation (a recent aerial may be included). Provide the name and distance of the nearest blue line and/or County-definitional stream(s) to the project site.*

Existing manmade improvements on the subject parcel include paved private driveways (Long Ranch Road and private driveway to 230 Long Ranch Road), one groundwater well, and various underground utility lines. None of the existing manmade improvements will be affected by the proposed project.

There is one unnamed blue-line stream located on the subject parcel running along the eastern property boundary. This is the nearest blue-line stream to the project area and it is located approximately 110 feet east of the project area at its nearest point at the eastern tip of Block 4. The provided 110 foot setback is in excess of the required 65' setback based on the Conservation Regulations. The unnamed blueline stream is tributary to Lake Hennessey.

There are no additional County-definitional streams in closer proximity to the project site.

There is also an ephemeral stream located in the northwest portion of the property near Block 1. A 35 foot setback has been provided for the ephemeral stream in accordance with the Conservation Regulations.

4. Location and source of water for irrigation or other uses. Provide copies of all necessary permits.

Irrigation water for the proposed vineyard development will come from the existing groundwater well located on the subject property. Another new well may be developed on the parcel to provide additional supply.

Please refer to the Water Availability Analysis prepared by Richard Slade and Associates for additional information regarding estimated water use, aquifer recharge rates, well to well interference and well to stream interference analysis.

5. *Soil types/soil series identified in the Soil Conservation Service (SCS) Napa County Soil Survey, or, if prepared, a site-specific soils report.*

The United States Department of Agriculture Soil Conservation Service Soils Map for Napa County shows several soil types mapped on the subject property including:

- 176 Rock outcrop-hambright complex, 50 to 75 percent slopes
- 178 Sobrante loam, 5 to 30 percent slopes
- 179 Sobrante loam, 30 to 50 percent slopes

A majority of the project area is mapped as Rock outcrop-Hambright complex, 50 to 75 percent slopes. The northerly approximately one-third of Block I is mapped as Sobrante loam, 30 to 50 percent slopes. The approximate soil type boundaries based on data obtained from the Napa County Geographic Information System database are illustrated on Sheet C3 of the 230 Long Ranch Road LLC Vineyard Development Erosion Control Plan.

6. *Critical areas of erosion and slope instability such as gullies, landslides, etc. within or potentially affecting the "development site" (i.e., the area disturbed by the project) or potentially affected by the work to be undertaken within the development site. In the case of landslides a report indicating the probable effects of the planned work on slope stability and erosion levels shall be prepared and submitted by a registered geologist.*

Representatives from Applied Civil Engineering Incorporated have visited the site several times to review the project area and have not observed any signs of gullies, landslides, slope instability or excessive erosion within the project area or in close proximity to the project area that would affect, or be affected by, the proposed project.

Furthermore, a geotechnical report in accordance with 18.108.027.F. was prepared by RGH Consultants. This report confirms that there are not landslides that will affect or be affected by the proposed project.

7. *Any erosion calculations prepared.*

The Universal Soil Loss Equation (USLE) was used to model pre-project and post-project conditions and estimate soil loss rates from the project area due to sheet erosion. The Soil Loss Analysis prepared by Dave Steiner, CPESC, CPSWC & Michael Muelrath, PE is included as an attachment to this document.

The USLE calculations predict that net soil loss rates will decrease slightly relative to existing conditions after implementation of the proposed vineyard erosion control plan.

8. *Any/all proposed erosion control methods including, but not limited to:*

- 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.*

The following measures will be implemented to minimize the potential for erosion on the project site during development and following completion of the vineyard development program:

- Sediment Barriers – Temporary silt fence and straw wattle type sediment barriers will be installed throughout the development area. The planned locations and installation details are provided on the erosion control plan. Additional sediment barriers will be installed as deemed necessary throughout the course of construction. The sediment barriers are intended to provide temporary sediment control during development and until the cover crop is established.
- Erosion Control Blankets – Erosion control blankets will be installed over seed on all cut and fill slopes that are steeper than 4:1 (Horizontal : Vertical). Erosion control blankets will provide additional protection from rainfall impact on exposed soils while the cover crop is getting established. The erosion control blanket locations, specifications and installation details are provided on the erosion control plan.
- Cross Slope Diversions – Permanent cross slope diversion ditches will be installed in various locations throughout the project area where indicated on the Erosion Control Plan. The purpose of the cross slope diversions is to limit the effective slope length within the vineyard block. This minimizes the chance for the runoff regimes transitioning from sheet flow to concentrated flow which would lead to increased runoff velocities and an increased potential for excessive erosion.
- Storm Drain Pipe - A permanent storm drain pipe will be installed where indicated on the Erosion Control Plan. The storm drain pipe will collect runoff that might otherwise concentrate and cause erosion within the development area. The storm drain pipe will outlet to an energy dissipater or level spreader as indicated

on the plans in order to dissipate runoff energy, return the water to sheet flow conditions, slow down the runoff and promote infiltration.

Furthermore, cross slope diversions will be constructed with a mild longitudinal slope to minimize the potential for erosion within the diversion, promote infiltration and mitigate any potential for increasing the rate at which runoff reaches receiving waters. Cross slope diversion locations and installation details are shown on the erosion control plan.

- **Straw Mulch** – Weed free agricultural straw derived from wheat, rice, barley, or native grass shall be used. Straw mulch can be applied by hand and can be adhered to slopes by roughening the soil surface before the mulch is applied, spreading the straw in a manner that promotes formation of an interwoven matrix, then crimping the straw into the soil. Straw mulch shall be applied at a rate of 3,000 pounds per acre over disturbed areas.
 - **Water Bars** – Temporary water bars will be installed on vineyard avenues to divert runoff from the avenues to prevent rutting. Water bar locations and installation details are shown on the erosion control plan.
 - **Energy Dissipators** – Rock rip-rap energy dissipators will be constructed at the outlet of all water bars that direct flow outside of the vineyard area to dissipate runoff energy and minimize the potential for erosion.
- b. *Proposed vegetative erosion control measures including maintenance of plant material and slopes until a specified percentage of plant coverage is uniformly established.*

Establishing an effective vegetative cover crop will be the primary method of preventing erosion from the vineyard development area. After the land preparation activities are complete a temporary cover crop will be planted and straw mulch will be spread throughout the cleared area to stabilize the project area through the winter.

Minimum coverage rates for each development area are as follows:

VINEYARD BLOCK COVER CROP SPECIFICATION TABLE	
Block ID	Required Cover %
1	85%
2	75%
3	75%
4	75%

The seed, fertilizer and mulch specifications are provided on the erosion control plan. This temporary cover crop will be cultivated in the spring and replanted in the fall for the first three years of the vineyard establishment period. Straw mulch will also be applied each fall during the vineyard established period. In the Fall following the vineyard establishment period all vineyard blocks will be planted with a permanent cover crop seed mix and farming practices will transition to a permanent cover, no-till, farming regime. The permanent cover crop will be mowed in the Spring. Spring mowing will be timed to allow maturation of seeds and promote natural stand regeneration. All permanent cover crop areas will be reseeded every two to three years or more frequently as needed to maintain at least the cover percentages described in the table above. Straw mulching will also be implemented as needed to achieve the coverage requirement.

Weed control under the vine rows will be primarily via mechanical means such as string trimmers and minimal herbicide usage. Herbicide used to control weeds within the vineyard block will be limited to spraying of post-emergent herbicide in a narrow 18 inch maximum width strip spray, if necessary to control weeds at the bases of the vines. The post emergent herbicide will be applied in the late winter or early spring to ensure that the spot spray area has vegetative protection through the rainy season. If the spray areas are not achieving adequate cover they must be mulched with straw and reseeded each year to provide the required cover.

The cover crop should be irrigated prior to the onset of the rainy season for at least the first Fall following development to establish a dense cover prior to the onset of heavy winter rains.

c. *Proposed erosion control measures for vineyard avenues to accommodate farm or vineyard equipment and materials storage locations*

A permanent cover crop will be planted in the vineyard avenues the first Fall following land preparation activities and it will be maintained as permanent cover throughout the life of the vineyard. No tilling will occur in the vineyard avenues. The permanent cover crop will be mowed in the Spring. Mowing will be timed to allow maturation of seeds and promote natural cover crop regeneration. All permanent cover crop areas will be reseeded every two to three years or more frequently as needed to maintain at least the cover listed for each block. Straw mulching and / or pre-irrigation of the cover crop will also be implemented as needed to achieve the coverage requirement for each development area (see table above). No herbicides will be used in the vineyard avenues.

Alternatively, vineyard avenues may be lined with crushed rock to limit their susceptibility to erosion and provide all weather access.

Water bars and / or straw wattles will be installed across the sloping vineyard avenues to force runoff to adjacent stable areas so that runoff does not concentrate on the vineyard avenues and cause erosion.

9. *Storm water stabilization measures to handle any increased peak rates of runoff from the development of the site that would result in flooding or channel degradation downstream. Include calculations of estimated increased runoff and/or an explanation of why an increase is/is not expected.*

Detailed calculations of predicted runoff rates within the project area for both pre- and post-project conditions utilizing the United States Department of Agriculture Technical Release 55 (USDA TR-55) methodologies are presented in the Hydrologic Analysis prepared by David Steiner, CPESC, CPSWQ and Michael Muelrath, PE. These calculations indicate that post-project conditions will result in runoff rates that are not greater than current conditions.

Since the project has been designed to maintain existing drainage patterns and since there will be no increase in peak runoff rates, the proposed project will not result in any significant change to local or regional hydrology / runoff patterns that could result in downstream flooding or channel degradation.

10. An implementation schedule indicating:

- a. The proposed vegetation clearing, earth moving/grading, and construction/planting schedule.*
- b. The proposed schedule for winterizing the site (by October 15th of each year the permit is in effect except in a municipal watershed where it is by September 1st).*
- c. The proposed schedule for installation of all interim erosion and sediment control measures (including vegetative measures) and the state of completion of such devices/measures at the end of the grading season (i.e., on October 15th [except in 5 designated municipal watersheds where it is September 1st] of each year the permit will be in effect).*
- d. The proposed schedule for installation of any permanent erosion and sediment control devices required.*

Vineyard Development Schedule

The schedule below is an estimate and is subject to change. Implementation of winterization and erosion control measure must be adjusted to accommodate any changes in development and planning under consultation with the Engineer. All land preparation, planting and erosion control work is to be performed by the property owner or by their contractor / vineyard manager.

April 2025

Commence Vineyard Development Program

Begin clearing and grubbing of existing vegetation. Complete land preparation for vineyard planting including: ripping, discing, rock removal and processing, recontouring and incorporation of soil amendments. Install drainage improvements, waterbars and rock energy dissipators.

*Prior to September 1, 2025

Complete all earth disturbing activities & drainage improvements installation.

- *Prior to September 15, 2025 Winterize Site
- Seed vineyard with temporary cover crop seed mix
 - Seed vineyard avenues with permanent cover crop seed mix
 - Place fertilizer, straw mulch and erosion control blankets
 - Install sediment barriers
 - Install water bars
 - Pre-irrigate cover crop to establish cover prior to rainy season.
- Establish reserve of erosion control measures to be maintained onsite throughout the rainy season to facilitate rapid deployment. Materials shall include silt fence, straw wattle, straw, erosion control seed mix, erosion control blanket and plastic sheeting.
- *September 15, 2025 - April 2026
- Inspect and maintain vegetative cover and erosion control devices at least once per week, prior to each anticipated rainfall event, at least once every 24 hours during extended rainfall events and following each rainfall event. Reseed and mulch any erosion damaged areas or areas with less than the specified cover percentage and repair or replace erosion control devices as necessary.
- Spring 2026
- Cultivate temporary cover crop within vineyard block footprint area and perform fine site grading to repair any storm damaged areas. No tilling of vineyard avenues is to be performed.
- Install irrigation and trellis systems. Plant rootstock.
- *Prior to September 15, 2026 Complete all earth disturbing activities
- Winterize Site
- Seed vineyard with temporary cover crop seed mix
 - Seed vineyard avenues with permanent cover crop seed mix
 - Place fertilizer, straw mulch and erosion control blankets
 - Install sediment barriers
 - Install water bars

*September 15, 2026 - April 2027

Inspect and maintain vegetative cover and erosion control devices at least once per week, prior to each anticipated rainfall event, at least once every 24 hours during extended rainfall events and following each rainfall event. Reseed and mulch any erosion damaged areas or areas with less than the specified cover percentage and repair or replace erosion control devices as necessary.

Spring 2027

Cultivate temporary cover crop and perform fine site grading to repair any storm damaged areas.

*Prior to September 15, 2027

Complete all earth disturbing activities

Winterize Site

Seed vineyard with temporary cover crop seed mix
Seed vineyard avenues with permanent cover crop seed mix

Place fertilizer, straw mulch and erosion control blankets

Install sediment barriers

Install water bars

*September 15, 2027 - April 2028

Inspect and maintain vegetative cover and erosion control devices at least once per week, prior to each anticipated rainfall event, at least once every 24 hours during extended rainfall events and following each rainfall event. Reseed and mulch any erosion damaged areas or areas with less than the specified cover percentage and repair or replace erosion control devices as necessary.

Spring 2028

Cultivate temporary cover crop and perform fine site grading to repair any storm damaged areas.

*Prior to September 15, 2028

Complete all earth disturbing activities

Winterize Site

Seed vineyard rows with permanent cover crop seed mix

Seed vineyard avenues with permanent cover crop seed mix

Place fertilizer, straw mulch and erosion control blankets

Install sediment barriers

Install water bars

*September 15, 2028 - April 2029

Inspect and maintain vegetative cover and erosion control devices at least once per week, prior to each anticipated rainfall event, at least once every 24 hours during extended rainfall events and following each rainfall event. Reseed and mulch any erosion damaged areas or areas with less than the specified cover percentage and repair or replace erosion control devices as necessary.

Spring 2029 & Beyond

See Annual Maintenance Schedule

Annual Maintenance Schedule

Spring

Mow permanent cover crop in vineyard and vineyard avenues and perform fine site grading to repair any storm damaged areas.

*Prior to September 15

Winterize Site

Repair any damage to vineyard and vineyard avenues that has occurred during the farming season. Place seed and straw on all vineyard avenues as needed to achieve the specified cover percentage. Install water bars.

Place erosion control seed, fertilizer, straw mulch, erosion control blankets and sediment barriers as necessary to stabilize any erosion prone areas outside and adjacent to the vineyard areas.

*September 15 - April 1

Inspect and maintain vegetative cover and erosion control devices at least once per week, prior to each anticipated rainfall event, at least once every 24 hours during extended rainfall events and following each rainfall event. Reseed and mulch any erosion damaged areas or areas with less than the specified percentage cover and repair or replace erosion control devices as necessary.

*Dates listed above are for portion of the project area within the Lake Hennessey municipal watershed. Replace "September" with "October" for portions of the project site outside of the Lake Hennessey municipal watershed area.

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

Implementation of erosion and sediment control measures for this project is anticipated to cost approximately \$5,000 to \$10,000 per acre. This estimate includes only the erosion and sediment control portions of the project, not the entire cost of permitting, engineering, land preparation, development, irrigation systems, trellis systems, and plants.