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# LANDSMART™ FOR VINEYARDS FARM PLAN

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Prepared for: \_\_\_\_\_

Prepared by: \_\_\_\_\_

Date: \_\_\_\_\_

Version 2.0  
January 2015



<b>CONTENTS</b>
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Introduction .....	3
Property Description .....	5
Vineyard Facility .....	5
Operations and Land Use .....	6
Existing Plans, Permits & Certifications .....	7
Off-site Conditions Outside of Landowner Control .....	8
Vineyard Facility Map Summary .....	9
Managing Agrichemicals .....	12
Agrichemical Handling and Storage .....	12
Pest Management .....	15
Nutrient Sources Used on the Vineyard Facility .....	17
Nutrient and/or Compost Management .....	17
Managing Erosion in Vineyard Blocks and Avenues .....	20
Preventing Erosion and Flow Concentration in Vineyard Blocks and Avenues .....	20
Managing Concentrated Storm Runoff and Sediment Delivery From Vineyard Blocks .....	24
Managing Natural Waterways, Ditches, and Spillways .....	27
Managing Erosion and Water Quality in Natural Waterways .....	28
Managing Erosion and Water Quality in Ditches .....	34
Managing Erosion from On-Farm Pond/Basin Spillways .....	37
Roads and Crossings .....	40
Photo Monitoring .....	44
Additional Goals, Interests or Concerns .....	45
Tracking implementation of your Farm Plan .....	46
Resources and Fact Sheets .....	47
Maps .....	48
Facility Documents .....	49
Photo Plates .....	50

## INTRODUCTION

This LandSmart™ Farm Plan template, in conjunction with workshops and one-on-one assistance (as needed), is intended to guide you through the process of inventorying vineyards, roads, and waterways, to document conservation practices that you currently use, and to help you select additional conservation practices, when needed, to protect water quality and other natural resources. The resulting plan is intended to be a working document to record your decisions and your progress. The plan will help you to identify locations where photo monitoring should be conducted to document your use of conservation practices. These photos, along with records you keep, can help you evaluate how various conservation practices work within your vineyard and, if needed, they can help you demonstrate to others the steps you have taken to protect and improve natural resources. Lastly, the plan will provide you with an easy to reference summary of conservation practices that you use and that you intend to implement (identified in earlier plan sections).

The LandSmart™ Farm Plan Template consists of several worksheets that you will complete. The top of each worksheet has information and/or directions, and as you work your way through the worksheet additional instructions may be provided based upon your responses to some questions. The questions and follow-up instructions are designed to help you identify which areas of your property could receive the most benefit from implementation of additional conservation practices. The worksheets also include tables to help you document existing and planned practices. You will be able to complete some of the worksheets quite easily. Other worksheets will take more time and will involve some field assessment, perhaps even some assistance from a resource professional (NRCS, RCD, or other professional). The LandSmart™ for Vineyards Reference Guide is also available to you and may assist in completing the worksheets. The Reference Guide contains chapters that correspond with each of the chapters in this Template. It is referenced throughout the Template and it is available on-line at [www.landsmart.org](http://www.landsmart.org).

This farm plan template purposefully covers topics of interest to most vineyard managers and has been developed to be consistent with water quality regulations. You may have additional conservation and land management interests beyond water quality regulations. The LandSmart™ program is intended to help you with those interests as well. If you need assistance to meet your agricultural and conservation goals, whether or not the topic is covered in this farm plan template, please do not hesitate to contact your local Natural Resources Conservation Service (NRCS) or Resource Conservation District (RCD) office.

*Additional information about the LandSmart Program, RCD and NRCS, basic watershed concepts, and a guide to navigating the permit process can be found in the Chapter 1 of the Resource Guide (available at [www.landsmart.org](http://www.landsmart.org)).*

**Contact Information**

NRCS Napa Field Office: 707-252-4189

NRCS Petaluma Field Office: 707-794-1242

Napa County RCD: 707-252-4188

Sonoma RCD : 707-569-1448

Mendocino County RCD: 707-462-3664

Gold Ridge RCD: 707-823-5244

<b>PROPERTY DESCRIPTION</b>
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**VINEYARD FACILITY**

<b>Vineyard Facility Name</b>			
<b>Name of Plan Preparer</b>		<b>Plan Date:</b>	
<b>Preparer's Affiliation</b>			
<b>Mailing Address</b>			
<b>City, State &amp; Zip Code</b>			
<b>Email</b>		<b>Phone:</b>	<b>Fax:</b>

Vineyard Facility Location *(See Chapter 2 of the Reference Guide for more information)*

<b>County</b>			
<b>Assessor's Parcel Number(s)</b>			
<b>Township</b>		<b>Range</b>	
<b>Latitude</b>		<b>Longitude</b>	
<b>Watershed and Sub-watershed</b>			

Owner/Lessee (if different from above)

<b>Name(s)</b>			
<b>Mailing Address</b>			
<b>City, State &amp; Zip Code</b>		<b>Phone (hm)</b>	
<b>Email</b>		<b>Phone (cell)</b>	

Land/Vineyard Manager (if different from above)

<b>Name(s)</b>			
<b>Mailing Address</b>			
<b>City, State &amp; Zip Code</b>		<b>Phone (hm)</b>	
<b>Email</b>		<b>Phone (cell)</b>	

Technical Assistance Advisors (if applicable)

<b>Name(s)</b>			
<b>Mailing Address</b>			
<b>City, State &amp; Zip Code</b>		<b>Phone (hm)</b>	
<b>Email</b>		<b>Phone (cell)</b>	

## Operations and Land Use

<b>Land Use Activity</b>	<b>Area/Length</b>		<b>Notes</b>
Vineyard Blocks and Avenues		Acres	
Grazing/Rangeland		Acres	
Grape Processing Facilities		Acres	
Roads (paved)		Feet/ Miles	
Roads (unpaved)		Feet/ Miles	
Other paved areas and buildings		Acres	
Forest/Woodland/Chaparral		Acres	
Open Space/Fallow/Undeveloped		Acres	
Reservoir/Pond (footprint)		Acres	
Stream/River/Creek/Riparian (delineated as blue-line on USGS topographic maps)		Feet/ Miles	
Stream/River/Creek/Riparian (not delineated as blue-line on USGS topographic maps)		Feet/ Miles	
Drainage Ditch/Canal		Feet/ Miles	
Other Vineyard/Farming Facilities		Acres	
Other Land uses		Acres	

**EXISTING PLANS, PERMITS & CERTIFICATIONS**

<i>Plan Type</i>	<i>Plan/ Permit Year</i>	<i>Plan/ Permit Area (ac)</i>	<i>Plan/Permit Number(s) and/or Notes (including status, e.g. permit pending/final or certification pending/complete)</i>
Napa County Erosion Control Plan			
Sonoma County Erosion Control Plan (VESCO)			
NRCS Conservation Plan			
Fire Management Plan			
Grazing/Rangeland Management Plan			
Grazing Lands Water Quality Plan			
Organic Certification (indicate if in transition)			
Timber Harvest Management Plan			
Napa Green Land/Fish Friendly Farming Certification			
The Code of Sustainable Winegrowing (note if Self-Assessment or Certified)			
Industrial Stormwater Permit for Wineries			
Sustainability in Practice (SIP)			
Engineered pond including water rights (if applicable)			
Permits for stream-related projects: Department of Fish and Wildlife, Corps of Engineers, etc.			
Other:			
Other:			

**OFF-SITE CONDITIONS OUTSIDE OF LANDOWNER CONTROL**

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If there are any upslope and/or upstream land uses or conditions within the watershed that are out of your control that may influence your ability to effectively implement conservation practices to control erosion, reduce sediment delivery, or otherwise protect water quality on your property, please describe them below.

Describe as needed:

**VINEYARD FACILITY MAP SUMMARY**

Maps will be an important part of your LandSmart™ Plan and will serve as an easy reference for you. Maps should be prepared on a topographic map, an aerial photograph, or a Google Earth image (minimum 1" = 1,000' or 1:12,000 scales). More than one map may be used to display the information needed to complete your plan. A more detailed map (scale of 1" = 500' or 1:6,000' may be needed to accurately depict stream channels, riparian corridors, or other small scale features. Each map should have a legend and should clearly display the features that are identified in your Farm Plan.

You may already have maps of the property to meet the mapping needs identified below (for example, erosion control plan maps). In this case, you may wish to include (or reference) existing maps in your Farm Plan and alleviate the need to prepare new maps. In other cases, you may generate maps as you work your way through the Farm Plan process and assess the various features on your property.

*See Chapter 3 of the Reference Guide for further information on map scale, map symbols, and other information that may be helpful in completing your maps.* If you need assistance with mapping, NRCS and/or RCD staff is available to assist you.

This table provides a summary of suggested features to map for inclusion in your Farm Plan. Please indicate below which features are displayed on your Farm Plan map(s) by checking the box on the left. Maps should be kept with the Farm Plan.

Mark X if mapped	Boundaries	Notes
	Property & plan boundaries	
	Parcel boundaries	
	Topography ( <i>identify area with slope &lt;5% and areas with slope &gt;30%</i> )	
	Existing vineyard block boundaries ( <i>indicate row direction, slope and block ID</i> )	
	Areas under consideration for new vineyard development or replant	
	Non-vineyard land uses (grazing, winery, other)	
<b>Buildings/Facilities – <i>May identify total footprint of buildings in lieu of labeling each</i></b>		
	Barns/shops/outbuildings/greenhouses	
	Agrichemical (pesticide/fertilizer/petroleum) handling site(s)	
	Agrichemical (pesticide/fertilizer/petroleum) storage facility(s)	

	Winery/post-harvest handling/storage facility(s)	
	Equipment yards and/or staging areas	
	Other:	
<b>Vineyard Soils, Erosion Control, Management &amp; Structures – Give each area/feature a name or number for easy reference.</b>		
	Soil type(s) with erosion rating(s) (map from <a href="http://websoilsurvey.nrcs.usda.gov">http://websoilsurvey.nrcs.usda.gov</a> )	
	Vineyard drainage system (diversion ditches, storm drains, and underground outlets with inlets and outlets)	
	Sediment/attenuation/energy dissipation basin(s)	
	Vineyard Avenue(s)	
	Erosion features (i.e. gullies, rills, landslides, mudflows, rock falls)	
	Other:	
<b>Waterways – Give each feature a name or number for easy reference.</b>		
	Ephemeral Stream (those that flow only during and shortly after a storm, also known as Class III streams)	
	Seasonal/Intermittent Stream (those that flow for part of the year and generally stop flowing in the late spring, also known as Class III streams)	
	Year Round Stream (those that generally flow year round also known as Class I or II streams, depending on other factors)	
	Human-made waterways (ditches, also known as Class IV streams)	
	Constructed Swale(s) – shallow trough-like depressions that carry water mainly during storms – no defined channel or bank	
	Spring(s), Seep(s), and Wet Area(s)	
	Reservoir/Pond/lake(s) (indicate pipe or open channel spillway location)	
	Known in-stream structures	
	Erosion features in waterways (i.e. streambank erosion, channel erosion)	
	Wells, with notation of their use (agricultural, residential, not in use, other)	
	Other:	
<b>Roads - Identify with a name and indicate if public, private and/or easements.</b>		
	Surfaced roads (paved, graveled, etc.)	
	Unsurfaced roads (dirt, vegetated etc. – do not include vineyard avenues)	
	Abandoned roads (trails or roads that are not used)	

	Waterway crossings (indicate whether freespan bridge, culvert, ford, etc.)	
	Erosion issues associated with roadside ditches, ditch relief culverts, waterbars, rolling dips, etc.	
	Erosion features on land associated with roads (i.e. gullies, rills, landslides, mudflows, rock falls)	
	Other:	
<b>Photo Monitoring Points – Sites you have selected for annual photo monitoring. Give each point a number for easy reference.</b>		
	Photo-points to demonstrate winter readiness	
	Photo-points to demonstrate annual maintenance and practice implementation	
	Photo-points to demonstrate condition of discharge points	
	Photo-points to demonstrate condition downstream of discharge points	
	Photo-points to track “areas to watch” – e.g. areas with erosion or invasive weeds that you want to track over time	
	Other:	

## MANAGING AGRICHEMICALS

**Background:** Agrichemicals (organic and/or synthetic nutrients and/or pesticides, including herbicides and sulfur) that move from the site of application into surface water, and other unintended places, can affect water quality by negatively impacting human, animal and/or non-target organism health. Nutrient sources associated with agricultural production practices may include organic and inorganic fertilizers, biodegraded crop residues, and agricultural wastes (grape pomace and waste directly generated by animals). Wind and water erosion of soil or aerial drift from agrichemical applications may contribute to pesticide movement away from the target area. Agrichemicals may enter surface waters during overland runoff and tile drainage either as water-soluble residuals or adsorbed to sediments. Nutrients from these sources become pollutants when they are transported off-site into nearby streams and lakes or percolate in excessive amounts of groundwater. Nitrates and phosphates in surface water bodies contribute to increases in aquatic plants and algal blooms that deplete dissolved oxygen and impact aquatic organisms.

*See chapter 4 of the Resource Guide for more information on managing agrichemicals, including BMP descriptions, beneficial insects, plans and instructions for building bird and bat houses, practices for treating common diseases/pests.*

**Purpose:** Identify practices, currently in use or intended for implementation, to ensure that agrichemicals (fertilizers, soil nutrients, compost and pesticides) are stored, mixed and applied in a manner consistent with all applicable regulations, including those required by the California Department of Pesticide Regulation (DPR) and the County Agricultural Commissioner, and in a manner that prevents excess agrichemicals from reaching surface and groundwater.

### AGRICHEMICAL HANDLING AND STORAGE

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A1. Agrichemicals are stored properly (per the label) on-site.

- Yes
- No (Implement practice # 2, listed in Table A1 below, consult a professional if needed)
- Agrichemicals are not stored on-site.

Describe as needed:

A2. Agrichemical mixing, loading, and rinsing are conducted in an area where agrichemicals are contained.

- Yes
- No (Consider practices # 3 through 6, listed in Table A1 below)
- No mixing, loading, or rinsing on-site.

Describe as needed:
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A3. Agrichemicals not handled on a containment facility are mixed, loaded and rinsed away from aquatic habitat and wells.

- Yes
- No (Consider practices # 3 through 6, listed in Table A1 below)
- Agrichemicals are not stored on-site.

Describe as needed:
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**Table A1: Conservation Practices for Agrichemical Handling and Storage**

The following table provides an assortment of management practices that are intended to protect water quality. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical and/or possible financial assistance. *See Chapter 4 of the Reference Guide for information on these conservation practices.*

<i>Conservation Practice</i>	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Planned Implementation Date</i>	<i>Location</i>
1. Consult a Professional		<input type="checkbox"/>		
2. Read agrichemical labels and store them according to directions.		<input type="checkbox"/>		
3. Use an impervious containment pad for agrichemical handling	Agrichemical Handling Facility (309)	<input type="checkbox"/>		
4. Provide securable agrichemical handling	Agrichemical Handling Facility (309)	<input type="checkbox"/>		
5. Move agrichemical handling away from aquatic habitat and wells		<input type="checkbox"/>		
6. Train employees on safe agrichemical handling		<input type="checkbox"/>		
Other:		<input type="checkbox"/>		

**PEST MANAGEMENT**

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A4. The facility operates under a current Pesticide Use Permit filed with the County Agricultural Commissioner.

- Yes
- No (Implement practice # 2, listed in Table A2 below. Consult a professional if needed)
- No pesticides are used at the facility.

Describe as needed:

A5. UC-IPM guidelines are followed (<http://www.ipm.ucdavis.edu/PMG/selectnewpest.grapes.html>)

- Yes
- Some
- No (Consider practices # 3 through 6, listed in Table A2 below)

Describe as needed:

A6. Alternative, non-chemical pest control methods are used when and where practical.

- Yes
- No (Consider practices # 10, 11 and 12 in Table A2 below)

Describe as needed:

**Table A2: Conservation Practices for Pest Management**

The following table provides an assortment of management practices that are intended to protect water quality. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical and/or possible financial assistance. *See Chapter 4 of the Reference Guide for information on these conservation practices.*

<i>Practice</i>	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Planned Implementation Date</i>	<i>Location</i>
1. Consult a Professional		<input type="checkbox"/>		
2. Apply pesticides under a Pesticide Use Permit		<input type="checkbox"/>		
3. UC-IPM: Implement appropriate guidelines for grapes	Integrated Pest Management (595)	<input type="checkbox"/>		
4. UC-IPM: Scout for pests	Integrated Pest Management (595)	<input type="checkbox"/>		
5. UC-IPM: Maintain pest management records	Integrated Pest Management (595)	<input type="checkbox"/>		
6. UC-IPM: Use chemicals that are lowest risk to water quality	Integrated Pest Management (595)	<input type="checkbox"/>		
7. Calibrate application equipment (sprayers and injectors) regularly		<input type="checkbox"/>		
8. Dispose of containers properly		<input type="checkbox"/>		
9. Train employees per OSHA & MSDS		<input type="checkbox"/>		
10. Install raptor roosts, owl boxes, and/or bat boxes	Upland Wildlife Habitat Management (645)	<input type="checkbox"/>		
11. Replace Pierce’s Disease host trees & shrubs with native plants	Brush Management (314) Riparian Forest Buffer (391)	<input type="checkbox"/>		
12. Replace Pierce’s Disease host forbs with native plants	Herbaceous Weed Control (603) Riparian Herbaceous Cover (390)	<input type="checkbox"/>		
Other:		<input type="checkbox"/>		

**NUTRIENT SOURCES USED ON THE VINEYARD FACILITY**

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Check all that apply:

- Synthetic Fertilizer
- Organic Fertilizer
- Compost (vegetative)
- Green Manure (nitrogen fixing) Cover Crop
- Animal Manure (is it composted?  Yes  No)
- Grape Pomace (is it composted?  Yes  No)
- Other

List:

**NUTRIENT AND/OR COMPOST MANAGEMENT**

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A7. Fertilizer amount and application timing is prescribed based on crop needs, identified by field inspection and/or testing. (Note testing date, if performed).

- Yes
- No (Consider practices # 1 through 7, listed in Table A3 below)

Describe as needed:

A8. Fertilizer(s) are applied and timed to reduce runoff and leaching.

- Yes
- No (Consider practices # 6 and 7, listed in Table A3 below)

Describe as needed:

A9. Fertilizer(s) are applied with calibrated equipment.

- Yes
- No (Consider practice #8, listed in Table A3 below)

Describe as needed:

A10. On-site composting takes place on a containment facility that collects any leachate.

- Yes
- No (Consider practice # 9, listed in Table A3 below)
- No on-site composting

Describe as needed:

A11. Compost is monitored to reach temperatures necessary to eliminate pathogens (131°F for a minimum of 3 days enclosed or 15 days if windrowed).

- Yes
- No (Consider practice # 10, listed in Table A3 below)
- No on-site composting

Describe as needed:

**Table A3: Conservation Practices for Nutrient Sources and Application Rates & Timing**

The following table provides an assortment of management practices that are intended to protect water quality. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical and/or possible financial assistance. *See Chapter 4 of the Reference Guide for information on these conservation practices.*

<i>Practices</i>	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Planned Implementation Date</i>	<i>Location</i>
1. Consult a Professional		<input type="checkbox"/>		
2. Perform visual or infrared crop assessment	Nutrient Management (590)	<input type="checkbox"/>		
3. Take petiole and/or leaf samples to assess plant nutrient content	Nutrient Management (590)	<input type="checkbox"/>		
4. Collect soil samples to assess available levels of soil nutrients	Nutrient Management (590)	<input type="checkbox"/>		
5. Time fertilizer application to meet crop requirements	Nutrient Management (590)	<input type="checkbox"/>		
6. Time fertilizer application to reduce runoff and leaching	Nutrient Management (590)	<input type="checkbox"/>		
7. Apply nutrients through fertigation (directly to root zone)	Nutrient Management (590)	<input type="checkbox"/>		
8. Calibrate application equipment (fertigation, spreaders) regularly	Nutrient Management (590)	<input type="checkbox"/>		
9. Provide a containment facility or area for composting	Composting Facility (317)	<input type="checkbox"/>		
10. Monitor compost and ensure that required conditions are met		<input type="checkbox"/>		
Other:		<input type="checkbox"/>		

**MANAGING EROSION IN VINEYARD BLOCKS AND AVENUES**

**Background:** When soil erodes and excessive amounts of sediment are allowed to enter waterways, water quality is impacted. In areas with ground disturbance, erosion rates can be relatively high and, hence, major contributors of sediment to water bodies. The risk of soil erosion increases based on factors of slope, soil type, and precipitation rates and timing. Vineyard operations on slopes over 5% must pay particular attention to erosion control practices.

Practices to reduce the risk of erosion generally aim to **slow** the rate of water running off of the land, **spread** water across the land, and allow for water to **sink** or percolate into the soil (i.e., Slow It, Spread It, Sink It). Where there are opportunities to safely disperse water across the land rather than concentrate it into a lined waterway or pipeline, please consider doing so.

*See Chapter 5 of the Reference Guide for further information on soil erosion and sedimentation, soil quality, and BMPs to manage erosion.*

**Purpose:** Identify practices currently in use and that are intended for implementation, to protect soil from erosion (slow and spread storm runoff), attenuate significant storm runoff flows, promote on-site water infiltration (sinking storm runoff), prevent excessive rates of sediment delivery to receiving waters, and reduce the impacts of storm runoff from the vineyard floor.

**PREVENTING EROSION AND FLOW CONCENTRATION IN VINEYARD BLOCKS AND AVENUES**

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V1. Vineyard blocks are covered by a fully implemented County-Approved Erosion Control Plan (ECP).

- All Blocks
- Some Blocks (Use appropriate ECP practices in all blocks, including those not covered by an ECP)
- No Blocks (If slopes are over 5% or if there is erosion, consider practice # 1, listed in Table V1 below)
- NA, a County ECP is not required.

ECP File #:	Approval Date:
-------------	----------------

Describe as needed:

V2. Mulch and/or vegetative cover is maintained in vineyard blocks (between vine rows) during rainy months.

- All Blocks
- Some Blocks (Consider a combination of practices # 2 through 12, listed in Table V1 below)
- No Blocks (Consider a combination of practices # 2 through 12, listed in Table V1 below)

Describe as needed:

V3. Mulch and/or vegetative cover is maintained on unsurfaced vineyard avenues during rainy months.

- All avenues
- Some avenues (Consider practices # 4, 9 through 14 listed in Table V1 below)
- No avenues (Consider practices # 4, 9 through 14, listed in Table V1 below)

Describe as needed:

V4. Vineyard blocks and avenues are inspected before and after major storm events and problem areas are treated.

- All Blocks
- Some Blocks (Implement practice # 17 and consider all practices listed in Table V1 below)
- No Blocks (Implement practice # 17 and consider all practices listed in Table V1 below)

Describe as needed:

V5. Emergency erosion control materials are readily available and field staff are trained in their proper use.

- Yes
- No (Practices # 18 and 19, listed in Table V1 below are suggested)

Describe as needed:

**Table V1: Conservation Practices to Reduce Soil Erosion and Runoff Concentration on the Vineyard**

The following table provides an assortment of management practices that are intended to protect water quality. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical and/or possible financial assistance. *See Chapter 5 of the Reference Guide for information on these conservation practices.*

<i>Practices</i>	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Planned Implementation Date</i>	<i>Location</i>
1. Consult a Professional		<input type="checkbox"/>		
2. Plant a non-tilled, permanent vegetative cover crop to minimize soil disturbance	Conservation Cover (327)	<input type="checkbox"/>		
3. Till every other middle (alternate row cultivation) and ensure that disturbed soil is protected during the rainy season. Avoid tilling in the avenue.	Cover Crop (340)	<input type="checkbox"/>		
4. Plant an annually seeded and/or disked cover crop (generally not appropriate for vineyards on slopes >5%)	Cover Crop (340)	<input type="checkbox"/>		
5. Mow (or string-trim) under the vinerows	Conservation Cover (327)	<input type="checkbox"/>		
6. Spot-spray under vinerows using post-emergent product – protect disturbed soils during rainy season		<input type="checkbox"/>		
7. Apply post-emergent spray in late spring – protect disturbed soils during rainy season		<input type="checkbox"/>		
8. Mulch under vinerows and/or in middles (between vinerows) to protect disturbed soils	Mulching (484)	<input type="checkbox"/>		
9. Install temporary straw or coir fiber structures to protect vulnerable areas	Stormwater Runoff Control (570)	<input type="checkbox"/>		

10. Plant/maintain a vegetative buffer along the block perimeter	Field Border (386) Conservation Cover (327) Filter Strip (393)	<input type="checkbox"/>		
11. Plant/maintain a vegetative buffer to filter runoff	Filter Strip (393) Vegetated Barrier (601)	<input type="checkbox"/>		
12. Plant/maintain a vegetative swale to filter runoff	Grassed Waterway (412)	<input type="checkbox"/>		
13. Apply seed and straw mulch to avenues in the fall		<input type="checkbox"/>		
14. Install and/or maintain waterbars in the avenues in the fall to disperse runoff		<input type="checkbox"/>		
15. Install a mid-slope runoff conveyance ditch with a protected outlet	Diversion (362)	<input type="checkbox"/>		
16. Install drop inlet pipe (storm drain) to convey runoff to a protected or safe outlet location	Underground Outlet (620)	<input type="checkbox"/>		
17. Conduct pre- and post-storm maintenance and monitoring; address erosion concerns as necessary		<input type="checkbox"/>		
18. Keep emergency erosion control materials readily available		<input type="checkbox"/>		
19. Provide erosion control trainings for field staff		<input type="checkbox"/>		
Other:		<input type="checkbox"/>		

**MANAGING CONCENTRATED STORM RUNOFF AND SEDIMENT DELIVERY FROM VINEYARD BLOCKS**

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V6. Rainfall runoff from the vineyard is dispersed and/or infiltrated in the vineyard and does not run off as concentrated flow. *(Note, this will not generally be the case as it is nearly impossible to contain all runoff. If you are on flat ground, consider how you get water out of your vineyard in the spring. If in doubt, mark "No" and complete the section.)*

- Yes (Describe dispersal/infiltration methods below and skip the remainder of this section)
- No (Consider practices # 1 through 7 and #11, listed in Table V2 below)

Describe as needed:

V7. Concentrated flow is conveyed in a way that prevents erosion and flow acceleration.

- Yes
- In Some Places (Consider practices # 2 through 9 and # 11, listed in Table V2 below)
- No (Consider practices # 2 through 9 and # 11, listed in Table V2 below)

Describe as needed:

V8. Concentrated flows that are conveyed into a basin or pond are released slowly and outlet to a stable location.

- Yes
- No (Consider practices # 6 through 10, listed in Table V2 below)
- Not Applicable

Describe as needed:

**Table V2: Conservation Practices to Slow and Remove Sediment From Concentrated Runoff From the Vineyard**

The following table provides an assortment of management practices that are intended to protect water quality. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical and/or possible financial assistance. *See Chapter 5 of the Reference Guide for information on these conservation practices.*

<i>Practices</i>	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Planned Implementation Date</i>	<i>Location</i>
1. Consult a Professional		<input type="checkbox"/>		
2. Plant a vegetative buffer or swale to filter runoff	Filter Strip (393) Grassed Waterway (412) Vegetated Barrier (601)	<input type="checkbox"/>		
3. Install a basin to collect sediment and/or attenuate flows	Sediment Basin (350)	<input type="checkbox"/>		
4. Install a level rock bench or tee spreader to disperse concentrated runoff	Underground Outlet (620)	<input type="checkbox"/>		
5. Install a diversion ditch – look for opportunities to disperse concentrated flows and ensure that outlet is protected	Lined waterway or outlet (468)	<input type="checkbox"/>		
6. Line an eroding swale or diversion ditch – look for opportunities to disperse concentrated flows and ensure that outlet is protected	Lined waterway or outlet (468)	<input type="checkbox"/>		
7. Install a piped storm drain - - look for opportunities to disperse concentrated flows and ensure that outlet is protected	Underground outlet (620)	<input type="checkbox"/>		
8. Install an energy dissipater at pipe/waterway outlet – look for opportunities to disperse concentrated runoff prior to outlet	Lined waterway or outlet (468)	<input type="checkbox"/>		

9. Install temporary straw or coir structures	Stormwater Runoff Control (570)	<input type="checkbox"/>		
10. Install a rock weir spillway from a sediment basin – look for opportunities to disperse concentrated flow	Structure for Water Control (587)	<input type="checkbox"/>		
11. Set back vineyard upon replant and seed bare areas	Critical Area Planting (342) Conservation Cover (327)	<input type="checkbox"/>		
Other:		<input type="checkbox"/>		

## MANAGING NATURAL WATERWAYS, DITCHES, AND SPILLWAYS

**Background:** Waterways, channels, streams, swales, and ditches act as a conduit from upstream to downstream areas and they are sensitive to land use activities and practices. Healthy riparian zones and/or adequate space between land use activities and waterways may provide a number of environmental benefits and may protect streambanks from erosion. Riparian areas also buffer waterways from the effects of potential nutrient, pesticide, pathogen and sediment runoff.

*See Chapter 6 of the Reference Guide for further information on waterways and riparian areas.*

**Purpose:** Describe the condition of natural stream channels, riparian areas, and human-made waterways (ditches and pond/basin spillways) on the property including the rate of bed and/or bank erosion, channel incision, head-cutting, and the condition of human-made structures in the channel. Describe the conservation practices being implemented to protect waterways from water quality degradation.

W1. Please mark the type(s) of waterways on the property that are on or adjacent to the vineyard facility:

- Natural (Complete questions W2 and W3 through W7. Complete Table W1.)
- Ditches (Complete Questions W2 and W8. Complete Table W2.)
- Spillways (Complete Questions W2 and W9 through W12. Complete Table W3.)
- No Waterways (You do not have to complete this section of the LandSmart Plan.)

W2. Waterways on the property regularly flow out of their banks and flood causing erosion and/or other problems.

- Yes (Consider Practice #1, listed in table W1 below)
- No

Describe as needed:

**MANAGING EROSION AND WATER QUALITY IN NATURAL WATERWAYS**

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W3. Vineyard blocks are set back from waterways by the minimum distance required by County regulations (or greater).

- Yes
- Some blocks (Consider practice #9, listed in Table W1 below)
- No (Consider practice #9, listed in Table W1 below)

Describe as needed:

W4. Other vineyard-related activities and/or features (e.g. vegetation removal, equipment turnarounds) within County-required setbacks are in compliance with County requirements.

- Yes
- No (Consider practice #9, listed in Table W1 below)

Describe as needed:

W5. All agricultural supplies (heaters, trellis parts, irrigation supplies, machinery, etc.) are stored outside of the required waterway setback during winter months.

- Yes
- No (Consider practice #10, listed in Table W1 below)

Describe as needed:

W6. Complete this data form for all natural waterways on or adjacent to the Vineyard facility. If major streams have widely varying characteristics, break the stream out into reaches with consistent characteristics. Make additional copies if all waterways do not fit on one form.

<b>Waterway Name</b> As labeled on Map. Break into reaches as needed.	<b>Channel width (ft)</b> ~ Bank full width	<b>Flow Persistence</b>	<b>Channel Condition</b>	<b>Slope of Banks</b>	<b>Material on Waterway Bottom</b> Check two boxes that are most appropriate	<b>Riparian Corridor Width (ft)</b>	<b>Riparian Vegetation</b>	<b>Riparian Shade Over Waterway</b>
	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 26-50 <input type="checkbox"/> 51+	<input type="checkbox"/> Year-round <input type="checkbox"/> Seasonally <input type="checkbox"/> During & shortly after storms	<input type="checkbox"/> Stable <input type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input type="checkbox"/> Steep (1:1) <input type="checkbox"/> Moderate (2:1) <input type="checkbox"/> Gentle (3:1 or less)	<input type="checkbox"/> Silt and Clay <input type="checkbox"/> Sand <input type="checkbox"/> Gravel (pea to tennis ball) <input type="checkbox"/> Cobble (tennis to basketball) <input type="checkbox"/> Boulder (> than a basketball) <input type="checkbox"/> Bedrock	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 26-50 <input type="checkbox"/> 50+	<input type="checkbox"/> Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Dense <input type="checkbox"/> Overgrown	<input type="checkbox"/> Not shaded/ sparsely shaded <input type="checkbox"/> Partially shaded <input type="checkbox"/> Mostly shaded
	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 26-50 <input type="checkbox"/> 51+	<input type="checkbox"/> Year-round <input type="checkbox"/> Seasonally <input type="checkbox"/> During & shortly after storms	<input type="checkbox"/> Stable <input type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input type="checkbox"/> Steep (1:1) <input type="checkbox"/> Moderate (2:1) <input type="checkbox"/> Gentle (3:1 or less)	<input type="checkbox"/> Silt and Clay <input type="checkbox"/> Sand <input type="checkbox"/> Gravel <input type="checkbox"/> Cobble <input type="checkbox"/> Boulder <input type="checkbox"/> Bedrock	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 26-50 <input type="checkbox"/> 50+	<input type="checkbox"/> Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Dense <input type="checkbox"/> Overgrown	<input type="checkbox"/> Not shaded/ sparsely shaded <input type="checkbox"/> Partially shaded <input type="checkbox"/> Mostly shaded
	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 26-50 <input type="checkbox"/> 51+	<input type="checkbox"/> Year-round <input type="checkbox"/> Seasonally <input type="checkbox"/> During & shortly after storms	<input type="checkbox"/> Stable <input type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input type="checkbox"/> Steep (1:1) <input type="checkbox"/> Moderate (2:1) <input type="checkbox"/> Gentle (3:1 or less)	<input type="checkbox"/> Silt and Clay <input type="checkbox"/> Sand <input type="checkbox"/> Gravel <input type="checkbox"/> Cobble <input type="checkbox"/> Boulder <input type="checkbox"/> Bedrock	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 26-50 <input type="checkbox"/> 50+	<input type="checkbox"/> Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Dense <input type="checkbox"/> Overgrown	<input type="checkbox"/> Not shaded/ sparsely shaded <input type="checkbox"/> Partially shaded <input type="checkbox"/> Mostly shaded
			If channel condition is not stable, consider practices # 1 through 6 and 9 listed in Table W1 below	If banks are very steep, consider practices # 1, 5, 6 and 9 listed in Table W1 below	Silt on the waterway bottom may indicate erosion nearby or upstream.	If riparian corridor width is less than county required setback, consider practices # 3, 4 and 9 in Table W1 below	If vegetation is minimal or sparse, consider practices # 3 and 4 in table W1. If vegetation is overgrown, consider practice # 2 in Table W1.	If riparian shade is sparse or not present, consider practice #3 in Table W1.

**Bank Erosion:**

Please note location and dimensions of any significant erosion features and whether erosion is already being treated/managed. If erosion at site is not being addressed consider practices #1 through 6 and 9 listed in Table W1.

**Other Notes:**

W7. **\*Optional\*** Complete this data form for each natural waterway where there is landowner interest in and opportunity to enhance native vegetation, fish and wildlife habitat. If you broke streams out into reaches above, use the same reaches here.

<b>Waterway Name</b> As labeled on Map. Please break major streams into reaches as above.	<b>Variety of Native Vegetation?</b> Mix of grasses, forbs, shrubs and trees?	<b>Non-native/ Invasive Plants</b> Indicate percentage of vegetative cover that is non-native. Seek assistance as needed.	<b>Structures Within Waterway Known to Cause Obstruction to Fish Passage?</b> Yes/No, note location	<b>Creek Channel Features</b> Check the boxes that seem to apply most.	<b>In-stream Habitat Structure</b> Check the boxes that seem to apply most.
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> 0-25% <input type="checkbox"/> 25-50% <input type="checkbox"/> 50-75% <input type="checkbox"/> 75-100%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Deep pools (>5') <input type="checkbox"/> Shallow pools (< 5') <input type="checkbox"/> Gravel Bars <input type="checkbox"/> Riffles (shallow gravel areas where water moves fast) <input type="checkbox"/> Bends <input type="checkbox"/> Straight	<input type="checkbox"/> Large wood <input type="checkbox"/> Boulders <input type="checkbox"/> Overhanging roots/banks <input type="checkbox"/> None of the above
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> 0-25% <input type="checkbox"/> 25-50% <input type="checkbox"/> 50-75% <input type="checkbox"/> 75-100%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Deep pools (>5') <input type="checkbox"/> Shallow pools (< 5') <input type="checkbox"/> Gravel Bars <input type="checkbox"/> Riffles <input type="checkbox"/> Bends <input type="checkbox"/> Straight	<input type="checkbox"/> Large wood <input type="checkbox"/> Boulders <input type="checkbox"/> Overhanging roots/banks <input type="checkbox"/> None of the above
	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> 0-25% <input type="checkbox"/> 25-50% <input type="checkbox"/> 50-75% <input type="checkbox"/> 75-100%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Deep pools (>5') <input type="checkbox"/> Shallow pools (< 5') <input type="checkbox"/> Gravel Bars <input type="checkbox"/> Riffles <input type="checkbox"/> Bends <input type="checkbox"/> Straight	<input type="checkbox"/> Large wood <input type="checkbox"/> Boulders <input type="checkbox"/> Overhanging roots/banks <input type="checkbox"/> None of the above
	If no, consider practices # 3 and 4 in Table W1 below	If non-native plant cover >50%, or if non-natives are a management concern, consider practice # 2 in table W1 below	If yes, consider practice # 7 in Table W1 below  <i>See Chapter 6 of the Reference Guide for information on fish passage</i>	<i>See Chapter 6 of the Reference Guide for information on channel features</i>	If low or none, consider practices # 1 and 8 in Table W1 below  <i>See Chapter 6 of the Reference Guide for information on in-stream habitat</i>

**Notes:**



**Table W1: Conservation Practices to Reduce Erosion in Natural Waterways**

The following table provides an assortment of management practices that are intended to protect water quality. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical and/or possible financial assistance. *See Chapter 6 of the Reference Guide for information on these conservation practices.*

	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Planned Implementation Date</i>	<i>Location</i>
1. Consult a Professional		<input type="checkbox"/>		
2. Remove invasive riparian plants and establish native riparian cover (permit may be required)	Restoration & Mgmt. Declining Habitats (643) Weed Control (315) Brush Management (314)	<input type="checkbox"/>		
3. Establish native riparian trees and shrubs	Riparian Forest Buffer (391)	<input type="checkbox"/>		
4. Establish native riparian grasses and forbs	Riparian Herbaceous Cover (390)	<input type="checkbox"/>		
5. Promote natural restoration (let the bank erode and as it becomes stable encourage native vegetation recruitment)		<input type="checkbox"/>		
6. Stabilize and protect streambanks through layback, bioengineering, and/or rock installation (permits likely required)	Streambank & Shoreline Protection (580)	<input type="checkbox"/>		
7. Modify instream structures to improve fish passage (permits required)	Stream Habitat Improvement & Mgmt. (395)	<input type="checkbox"/>		
8. Install in-stream structures to enhance habitat (permits required)	Stream Habitat Improvement & Mgmt. (395)	<input type="checkbox"/>		
9. Provide more space to the stream by setting back structures, roads, vines, and other agricultural activities		<input type="checkbox"/>		
10. Establish a supply yard away from the waterway		<input type="checkbox"/>		
Other:		<input type="checkbox"/>		

**MANAGING EROSION AND WATER QUALITY IN DITCHES**

W8. Complete this inventory for ditches. If the ditch has widely varying characteristics, break it out into reaches with consistent characteristics. Make additional copies if all ditches do not fit on one form.

Ditch ID (As labeled on Map)	Ditch			Adjacent Buffer	
	Width at top of bank (ft)	Ditch Condition	Vegetative Cover on Ditch Banks and Bottom	Vegetation Buffer Width (ft) From top of bank	Vegetation Condition Minimal, Sparse, Moderate, Full Cover
	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> Stable <input type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover
	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> Stable <input type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover
	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> Stable <input type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover
	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> Stable <input type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover
	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> Stable <input type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover
	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> Stable <input type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover
		If ditch condition is not stable, consider practices #1 through 6 listed in table W2 below.	If vegetative cover is minimal or sparse, consider practices #2 and 6 listed in Table W2 below.	If vegetation is not present, or if width is narrower than the ditch itself, consider practice #3 listed in table W2 below.	If vegetation is minimal or sparse, consider practice #2 listed in table W2 below.

**Notes:**

**Table W2: Conservation Practices to Reduce Erosion and Manage Stability and Conveyance in Ditches**

The following table provides an assortment of management practices that are intended to protect water quality. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical and/or possible financial assistance. *See Chapter 6 of the Reference Guide for information on these conservation practices.*

	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Planned Implementation Date</i>	<i>Location</i>
1. Consult a Professional		<input type="checkbox"/>		
2. Establish native grasses and forbs	Conservation Cover (327) Critical Area Planting (342)	<input type="checkbox"/>		
3. Provide more space to the ditch by setting back vines		<input type="checkbox"/>		
4. Line an eroding swale or diversion ditch – seek opportunities to disperse water and ensure that outlet is protected and well maintained	Lined Waterway or Outlet (468)	<input type="checkbox"/>		
5. Install rock check structures to dissipate hydraulic energy	Structure for Water Control (587)	<input type="checkbox"/>		
6. Plant a vegetative filter waterway	Grassed Waterway (412)	<input type="checkbox"/>		
Other:		<input type="checkbox"/>		

**MANAGING EROSION FROM ON-FARM POND/BASIN SPILLWAYS**

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W9. Open channel spillways are stable (not eroding) and/or properly armored to prevent erosion.

- Yes
- No (Consider practices # 1 through 5, listed in Table W4 below)
- Not applicable, no open spillways

Describe as needed:

W10. Piped and open channel spillways from on-farm ponds are adequately sized to handle expected pond overflow volume .

- Yes
- Some spillways (Consider practices # 3, 6 and 7, listed in Table W4 below)
- No spillways (Consider practices # 3, 6 and 7, listed in Table W4 below)

Describe:

W11. The alignments of spillway outlets, both piped and open channel, are in line with the downstream waterway (i.e., flow from the spillway outlet enters the waterway in-line with flow of the natural waterway).

- Yes
- Some spillways (Consider practice # 8, listed in Table W4 below)
- No spillways (Consider practice # 8, listed in Table W4 below)
- Not Applicable

Describe as needed:

W12. Spillways, pipe and open channel, from on-farm ponds have energy dissipaters prior to re-entering the downstream waterway.

- Yes
- Some spillways (Consider practices # 5 through 7, listed in Table W4 below)
- No spillways (Consider practices # 5 through 7, listed in Table W4 below)
- Not Applicable

Describe as needed:

**Table W3: Conservation Practices to Reduce Erosion and Manage Stability and Conveyance in On-farm Pond/Basin Spillways**

The following table provides an assortment of management practices that are intended to protect water quality. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis and an assortment of practices to protect water quality and to suit your circumstance should be selected. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical and/or possible financial assistance. *See Chapter 6 of the Reference Guide for information on these conservation practices.*

<i>Practices</i>	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Planned Implementation Date</i>	<i>Location</i>
1. Consult a Professional		<input type="checkbox"/>		
2. Install a rock weir to control and slow in-channel flow	Grade Stabilization Structure (410)	<input type="checkbox"/>		
3. Widen/enlarge the spillway	Pond (378)	<input type="checkbox"/>		
4. Stabilize the open channel spillway	Pond (378)	<input type="checkbox"/>		
5. Plant a vegetative filter waterway	Grassed Waterway (412)	<input type="checkbox"/>		
6. Install a rock lined plunge basin	Structure for Water Control (587)	<input type="checkbox"/>		
7. Install an energy dissipater at the spillway outlet to reduce streambank erosion	Streambank and Shoreline Protection (580)	<input type="checkbox"/>		
8. Realign the existing spillway with the downstream waterway	Pond (378)	<input type="checkbox"/>		
Other:		<input type="checkbox"/>		

## ROADS AND CROSSINGS

**Background:** Roads that drain toward waterways can be major contributors of sediment. Roads must be safe to travel while having a minimal effect on waterways in the watershed. Practices to address erosion from roads aim to reduce the concentration of flow from roads, slowing the rate of water running off the land and discharging accumulated waters more frequently to areas away from waterways.

*See Chapter 7 of the Reference Guide for further information on roads and crossings.*

**Purpose:** To identify practices, currently in use and intended for implementation, to slow, spread and sink runoff from roads, particularly unpaved roads. Identify priority road reaches that may discharge directly to waterways so that no more than 25% of roads are connected.

R1. Roads on the property are included in an implemented County approved Erosion Control Plan.

- All roads.
- Some roads.
- No roads.

Describe as needed:

R2. Roads on the vineyard property cross waterways.

- Yes (Please complete the Road Stream Crossing Data Form that follows for each crossing.) Make additional copies of the data form as needed. Consider practices in Table R1 below, as appropriate.
- No

R3. Road surfaces, fills, and cutbanks on the property appear to be stable (i.e., they do not show signs of excessive erosion (riling, cut-bank failures, slumping)

- Yes
- No (Consider practices listed in Table R2 below)

R4. All roads on the property are necessary and utilized.

- Yes
- No (Consider practice #14, listed in Table R2 below)

**DATA FORM R1. ROAD STREAM CROSSING DATA FORM**

Complete this data form for each place that roads cross a waterway. *The instructions and definitions in the Resource Manual may be helpful.* Make a copy of the form for each crossing. As applicable consider treatment options provided and complete Conservation Practice Tables R1 and R2.

<b>ROAD STREAM CROSSING DATA FORM (2015)</b>			
<b>GENERAL</b>	Site #:	Road ID/Name:	Date:
			Site located up-stream of pond/reservoir (Y,N): <input type="checkbox"/> Yes <input type="checkbox"/> No
Are fill slopes or adjacent stream banks actively eroding (Y, N): <input type="checkbox"/> Yes <input type="checkbox"/> No			
(If yes see treatment option 3, 13, 14, 15 in Table R1)			

<b>STREAM CROSSING TYPE (Circle one)</b>	Bridge, Bottomless Arch, or Box. (If yes, skip down to 'Road Drainage' section)	Culvert (round or oval) (If yes, go to 'Culverted crossing info' section)	Wet Crossing (Ford, Armored Fill, Fill, or Pulled crossing) (If yes, go to 'Wet crossing' section)
<b>Culverted Crossing info</b>	Is rust/silt line at inlet of culvert greater than half the diameter of the culvert (Y, N): <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, see treatment options 4, 5, 8 in Table R1).		Is Inlet of culvert greater than 20% crushed or plugged (Y, N): <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, see treatment options 3, 7, 8 in Table R1).
	Is culvert bottom rusted or separated (Y, N): <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, see treatment options 4, 5, 7, 8 in Table R1).		Does the Culverted stream crossing have diversion potential (Y, N): <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes see treatment options 9, 10 in Table R1)
<b>Wet crossing info</b>	Is crossing dipped wide enough to keep flows within natural stream channel (Y, N): <input type="checkbox"/> Yes <input type="checkbox"/> No (If no see treatment option 3 in Table R1)		At Armored Fill crossing, is armor adequate enough to prevent fill material from eroding (Y, N): <input type="checkbox"/> Yes <input type="checkbox"/> No (If no see treatment option 14 in Table R1)
	Does crossing look to be actively eroding (Y, N): <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes see treatment options 3, 14 in Table R1)		

<b>ROAD DRAINAGE TO STREAM CROSSING</b>	<b>Left road/avenue</b> length(s) draining down to site (ft): (If greater than 150ft see treatments options in Table R2)	Road Surface (paved, rocked, native):	Avg. width (ft):
		<b>Right road/avenue</b> length(s) draining down to site (ft): (If greater than 150ft see treatments options in Table R2)	Road Surface (paved, rocked, native):

<b>COMMENT ON STREAM CROSSING AND ASSOCIATED ROAD LENGTH(S):</b>

**Table R1: Treatment Options to Reduce Erosion and Manage Stability at Stream Crossings**

The following table provides an assortment of management practices that are intended to protect water quality. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical and/or possible financial assistance. *See chapter 7 of the reference guide for information on these conservation practices.*

<i>Practices (at stream crossing)</i>	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Planned Implementation Date</i>	<i>Location / Site#</i>
1. No treatment at site	--		--	
2. Consult a Professional		<input type="checkbox"/>		
3. Excavate soil	Earthfill (903)	<input type="checkbox"/>		
4. Install bridge	Stream Crossing (578)	<input type="checkbox"/>		
5. Construct Armored-fill crossing <i>(See typical drawings 5a, 5b, 6, 7)</i>	Stream Crossing (578)	<input type="checkbox"/>		
6. Construct a Ford crossing <i>(See typical drawing 5a)</i>	Stream Crossing (578)	<input type="checkbox"/>		
7. Repair culvert	Access Road (560)	<input type="checkbox"/>		
8. Install or replace culvert <i>(See typical drawing 2, 4)</i>	Access Road (560)	<input type="checkbox"/>		
9. Construct critical dip <i>(See typical drawing 1c)</i>	Access Road (560)	<input type="checkbox"/>		
10. Install critical culvert	Access Road (560)	<input type="checkbox"/>		
11. Remove screen from culvert inlet	Access Road (560)	<input type="checkbox"/>		
12. Install trash rack (SB, GP, I-B) <i>(See typical drawing 3)</i>	Access Road (560)	<input type="checkbox"/>		
13. Armor fill face <i>(See typical drawing 1b, 4)</i>	Lined Waterway or Outlet (468) and Rock Riprap (907)	<input type="checkbox"/>		
14. Armor below outlet <i>(See typical drawing 1b)</i>	Lined Waterway or Outlet (468) and Rock Riprap (907)	<input type="checkbox"/>		
15. Other		<input type="checkbox"/>		

**Table R2: Treatment Options to Reduce Erosion from Road Surfaces**

The following table provides an assortment of management practices that are intended to protect water quality. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical and/or possible financial assistance. *See chapter 7 of the reference guide for information on these conservation practices.*

<i>Practices (along road lengths)</i>	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Planned Implementation Date</i>	<i>Location Site#</i>
1. No treatment at site	--		--	
2. Consult a Professional		<input type="checkbox"/>		
3. Construct rolling dips <i>(See typical drawings 10, 11, 19a-c.)</i>	Access Road (560)	<input type="checkbox"/>		
4. Install Speed bumps on paved road	Access Road (560)	<input type="checkbox"/>		
5. Outslope road & remove ditch <i>(See typical drawings 9a-c)</i>	Access Road (560)	<input type="checkbox"/>		
6. Outslope road & retain ditch – ensure that outlet is located in a stable location <i>(See typical drawings 9a-c)</i>	Access Road (560)	<input type="checkbox"/>		
7. Inslope road – ensure that ditch outlets to a stable location <i>(See typical drawings 9a-c)</i>	Access Road (560)	<input type="checkbox"/>		
8. Crown road <i>(See typical drawings 9a-c)</i>	Access Road (560)	<input type="checkbox"/>		
9. Install/Replace ditch relief culvert – ensure that outlet is located in a stable location <i>(See typical drawing 8)</i>	Access Road (560)	<input type="checkbox"/>		
10. Cut/clean ditch	Diversion (362) and Access Road (560)	<input type="checkbox"/>		
11. Rock armor ditch – ensure that ditch outlets to a stable location	Lined Waterway or Outlet (468)	<input type="checkbox"/>		
12. Construct Water bars <i>(See typical drawing 20)</i>	Access Road (560)	<input type="checkbox"/>		
13. Construct cross road drains <i>(See typical drawing 17)</i>	Access Road (560)	<input type="checkbox"/>		
14. De-compact road surface <i>(See typical drawing 17)</i>	Road Closure and Treatment (654)	<input type="checkbox"/>		
15. Other		<input type="checkbox"/>		

**PHOTO MONITORING**

**Purpose:** To document your visual monitoring and site inspections and record your monitoring notes and any actions needed and taken. Monitoring sites should be selected to 1) demonstrate winter readiness, 2) demonstrate annual maintenance and practice implementation, 3) demonstrate condition of outfall (discharge) points and associated receiving waters, and 5) track other areas of interest that you want to watch (e.g., areas of erosion, areas of invasive vegetation, etc.) Monitoring is conducted to document that sediment control practices outlined in the LandSmart™ Plan are implemented, that the practices are effective, and that they are properly maintained. Monitoring locations should be mapped and numbered. To the extent feasible, photos should be kept with the Farm Plan. In any case, photos should be readily available for reference.

<b>Label on Map</b>	<b>Purpose</b> Winter readiness; annual maintenance; practice implementation; outfall and receiving water point; other	<b>Date</b> (m/d/y)	<b>Photo Taken</b> ? Y or N	<b>Condition</b> (performing properly, needs maintenance, needs consultation)	<b>Actions taken</b>

**ADDITIONAL GOALS, INTERESTS OR CONCERNS**

Please describe any other natural resource-related goals, interests or concerns identified during the planning process but not otherwise noted in this plan.

Describe as needed:

**TRACKING IMPLEMENTATION OF YOUR FARM PLAN**

**Background:** By tracking changes in land use and implementation of conservation or beneficial management practices (BMPs) on your agricultural operation, any water quality changes that may occur due to implementing practices are documented. Monitoring water quality changes can attribute those changes to implementation of practices or to other confounding influences such as regional geology or a source upslope or upstream of the operation.

Use this table to track implementation of the actions that you identified in the previous sections. You can also use this table to list additional conservation practices not identified in previous chapters that are part of your management goals for the property. You may make additional copies of this page as needed to adequately document all practices that are planned or have already been implemented.

<b>Practice</b>	<b>Applicable NRCS Practice Standard</b>	<b>Location</b> (show on map if possible)	<b>Date</b> (Implemented and/or Maintained)	<b>Details/Notes</b> (include reference to photos)

RESOURCES AND FACT SHEETS

MAPS

FACILITY DOCUMENTS

PHOTO PLATES