STORMWATER RUNOFF MANAGEMENT PLAN (SRMP)

Raymond Winery

849 Zinfandel Lane
St. Helena, CA 94574

SUMMIT
CIVIL STRUCTURAL ELECTRICAL WATER|WASTEWATER

Project No. 2010080
8/15/13

NAPA COUNTY
POST-CONSTRUCTION RUNOFF MANAGEMENT REQUIREMENTS

APPENDIX A

APPLICABILITY CHECKLIST

NAPA COUNTY POST-CONSTRUCTION RUNOFF MANAGEMENT REQUIREMENTS
APPENDIX A – APPLICABILITY CHECKLIST

Post-Construction Runoff Management Applicability Checklist	County of Napa Department of Public Works 1195 Third Street Napa, CA 94559 (707) 253-4351 for information

Project Address:	Assessor Parcel Number(s):	Project Number: *(for County use Only)*
849 Zinfandel Ln., St. Helena, CA	30-270-04 & 30-050-27	

Instructions:

Structural projects requiring a use permit, building permit, and/or grading permit must complete the following checklist to determine if the project is subject to the Post-Construction Runoff Management Requirements. In addition, the impervious surface worksheet on the reverse page must also be completed to calculate the amount of new and reconstructed impervious surfaces proposed by your project. This form must be completed, signed, and submitted with your permit application(s). Definitions are provided in the Post-Construction Runoff Management Requirements policy. **Note:** If multiple building or grading permits are required for a common plan of development, the total project shall be considered for the purpose of filling out this checklist.

POST-CONSTRUCTION STORMWATER BMP REQUIREMENTS (Parts A and B)

- ✓ If any answer to Part A are answered "yes" your project is a "Priority Project" and is subject to the Site Design, Source Control, and Treatment Control design standards described in the Napa County Post-Construction Runoff Management Requirements.
- ✓ If all answers to Part A are "No" and any answers to Part B are "Yes" your project is a "Standard Project" and is subject to the Site Design and Source Control design standards described in the Napa County Post-Construction Runoff Management Requirements.
- ✓ If every question to Part A and B are answered "No", your project is exempt from post-construction runoff management requirements.

Part A: Priority Project Categories

Does the project meet the definition of one or more of the priority project categories?

1.	Residential with 10 or more units	Yes (No)
2.	Commercial development greater than 100,000 square feet	Yes (No)
3.	Automotive repair shop	Yes (No)
4.	Retail Gasoline Outlet	Yes (No)
5.	Restaurant	Yes (No)
6.	Parking lots with greater than 25 spaces or greater than 5,000 square feet	(Yes) No

*Refer to the definitions section for expanded definitions of the priority project categories.

Part B: Standard Project Categories

Does the project propose:

1.	A facility that requires a NPDES Permit for Stormwater Discharges Associated with **Industrial** Activities?	Yes (No)
2.	New or redeveloped impervious surfaces 10,000 square feet or greater, excluding roads?	(Yes) No
3.	Hillside residential greater than 30% slope	Yes (No)
4.	Roadway and driveway construction or reconstruction which requires a Grading Permit	(Yes) No
5.	Installation of new storm drains or alteration to existing storm drains?	Yes (No)
6.	Liquid or solid material loading and/or unloading areas?	Yes (No)
7.	Vehicle and/or equipment fueling, washing, or maintenance areas, excluding residential uses?	Yes (No)
8.	Commercial or industrial waste handling or storage, excluding typical office or household waste?	Yes (No)

Note: To find out if your project is required to obtain an individual General NPDES Permit for Stormwater discharges Associated with Industrial Activities, visit the State Water Resources Control Board website at, www.swrcb.ca.gov/stormwtr/industrial.html

NAPA COUNTY POST-CONSTRUCTION RUNOFF MANAGEMENT REQUIREMENTS
APPENDIX A – APPLICABILITY CHECKLIST

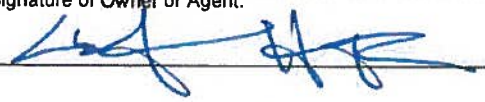
Impervious Surface Worksheet

Project phasing to decrease impervious surface area shall not exempt the project from Post-Construction Runoff Management requirements. A new development or redevelopment project must comply with the requirements if it is part of a larger common plan of development that would result in the creation, addition and/or reconstruction of one acre or more of impervious surface. (For example, if 50% of a subdivision is constructed and results in 0.9 acre of impervious surface, and the remaining 50% of the subdivision is to be developed at a future date, the property owner must comply with the Post-Construction Runoff Management requirements.

Type of Impervious Surface	Impervious Surface (Sq Ft)			Total New and Reconstructed Impervious Surfaces (Sq Ft)
	Pre-Project (if applicable)	New (Does not replace any existing impervious area)	Reconstructed (Replaces existing impervious area)	
Buildings, Garages, Carports, other Structures with roofs	122,774	-	-	-
Patio, Impervious Decking, Pavers and Impervious Liners	-	-	-	-
Sidewalks and paths	53,624	-	-	-
Parking Lots	47,666	14,269	-	14,269
Roadways and Driveways,	54,285	-	-	-
Off-site Impervious Improvements	N/A	N/A	N/A	N/A
Total Area of Impervious Surface (Excluding Roadways and Driveways)	224,064	14,269	0	14,269

Incorrect information on proposed activities or uses of a project may delay your project application(s) or permit(s).

I declare under penalty of perjury, that to the best of my knowledge, the information presented herein is accurate and complete.

Name of Owner or Agent (Please Print):	Title:
Lisa Heisinger	VP Operations
Signature of Owner or Agent:	Date:
	8/14/13

NAPA COUNTY
POST-CONSTRUCTION RUNOFF MANAGEMENT REQUIREMENTS

APPENDIX B

APPLICATION FOR SRMP REVIEW

NAPA COUNTY POST-CONSTRUCTION RUNOFF MANAGEMENT REQUIREMENTS
APPENDIX B – APPLICATION FOR SRMP REVIEW

FOR OFFICE USE ONLY

SUBMITTAL DATE: _____ **FILE #:** _____ **APN #:** _____

USGS QUAD: _____ **CalWatershed:** _____

REQUEST: _____

_____

USE PERMIT CATEGORY: ☐ Hillside Residence ☐ Subdivision ☐ Commercial Facility **TYPE:** ☐ Private ☐ Public

BUILDING AND/OR GRADING PERMIT: ☐ Structure ☐ Driveway ☐ Road ☐ Reservoir ☐ Cave ☐ Other

FINAL APPROVAL: Date: _____

Deposit: $ _____ _____ _____ _____

Deposit *Receipt Number* *Received By* *Date*

TO BE COMPLETED BY APPLICANT

(Please type or print legibly)

Applicant's Name: Jasper Lewis-Gehring **Company:** Summit Engineering Inc.

Telephone #: (707) 527-0775 **Fax #:** ( ) **E-Mail:** jasper@summit-sr.com

Mailing Address: 463 Aviation Blvd. Ste. 200 Santa Rosa CA 95403

No *Street* *City* *State* *Zip*

Status of Applicant's Interest in Property: Engineering Consultant to property owner

Property Owner's Name: Boisset Family Estates

Telephone #: (707) 596-9111 **Fax #:** ( ) **E-Mail:** lisa.heisinger@biosset.com

Mailing Address: 849 Zinfandel Ln. St. Helena CA 94574

No *Street* *City* *State* *Zip*

Site Address/Location: 849 Zinfandel Ln. St. Helena

No *Street* *City*

Assessor's Parcel #(s): 30-270-013

SIGNATURE: I hereby certify that all the information contained in this application, including but not limited to, this application form, the Stormwater Runoff Management Plan (SRMP), the supplemental information sheets, site plan, plot plan, cross sections/elevations, is complete and accurate to the best of my knowledge. I hereby authorize such investigations including access to County Assessor's Records as are deemed necessary by the Department of Public Works for evaluation of this application and preparation of reports related thereto, including the right of access to the property involved.

Signature of Applicant _____ Date 8/14/2014

Signature of Property Owner _____ Date 8/14/13

NAPA COUNTY
POST-CONSTRUCTION RUNOFF MANAGMENT REQUIREMENTS

APPENDIX C

SRMP Checklist for a Complete Application

NAPA COUNTY CONSTRUCTION SITE RUNOFF CONTROL REQUIREMENTS
APPENDIX C – SRMP CHECKLIST FOR A COMPLETE APPLICATION

FOR OFFICIAL USE ONLY

PLAN REVIEWER: _____ DATE RECEIVED: _____

PROJECT NAME: _____ PROJECT NUMBER: _____

PERMIT CATEGORY: ☐ Use Permit ☐ Building Permit ☐ Grading Permit

Project Category (check all applicable Priority or Standard Project categories)

☒ **Priority Project**	☒ **Standard Project**
____ Residential with 10 or more units	____ Industrial NPDES permit
____ 100,000 sq ft commercial	✓ Impervious surface > 10,000 sq ft (excluding roads)
____ Automotive repair shop	____ Hillside residential on slopes 30% or more
____ Restaurant	✓ Roadways and driveways that require a grading permit
____ Retail Gasoline Outlet	____ New or alteration of storm drains
✓ Parking Lot (>25 spaces or >5,000SF)	____ Liquid or solid material loading areas
	____ Vehicle or equipment fueling, washing, or maintenance
	____ Commercial or industrial waste handling and storage

At a minimum, the Stormwater Runoff Management Plan must cover the areas listed below.

√ = Complete, X = Incomplete, NA = Not Applicable

A. Planning and Organization

1. ✓ Completed Post-Construction BMP Applicability Checklist (Appendix A)
2. ✓ Completed SRMP General Information Form (Appendix B).
2. ✓ Vicinity map showing the site in relation to the surrounding area.
3. N/A If applicable, incorporate or reference other regulatory permits and their requirements. **Note:** All State and Federal Permits (1600, 401/404, General Permit, etc) must be approved prior to any construction within State Waters.
4. ✓ Describe the nature of the proposed use of the development project.

B. Identify Pollutants and Conditions of Concern

1. ✓ Standard and Priority Projects proposing 10,000 or more sq. ft. of new impervious surface, excluding roadways and driveways or projects directly discharging to tidally-influenced receiving waters, must prepare a drainage study that calculates the pre-development runoff volume according to the criteria in Chapter 3.1.
2. ✓ Standard and Priority Projects must provide a completed Source Control BMP Selection Worksheet (Appendix E) that lists all anticipated activities associated with the use of the proposed project that have the potential to generate pollutants.
3. ✓ Standard and Priority Projects must list and describe all stormwater conveyance systems (e.g. storm drain, ditch, creek, etc) within 150 feet of the project footprint. Discretionary projects must also provide an analysis for all open stormwater conveyance systems. At a minimum, the analysis must consider the criteria in Chapter 3.3.

4. ✓ Priority Projects required to incorporate Treatment Control BMPs into the project design shall provide a completed Post-Construction BMP Selection Worksheet (Appendix F).

D. Post-Construction BMPs

Site Design BMPs

1. ✓ List and describe all Site Design BMPs used to maintain stormwater runoff volumes to pre-development conditions according to the criteria described in Chapter 4.1. If structural controls are required to maintain pre-development peak runoff conditions, a description of why Site Design BMPs alone are not practicable for maintaining runoff conditions is required.
2. N/A List and describe all structures (outfalls, culverts, etc.) proposed within the jurisdiction of the DFG, RWQCB, and/or ACE. The description must include the structure's specifications and designed storm capacity. The structure must be constructed in accordance with all applicable State and Federal permits.
3. ✓ Provide the average slope and minimum and maximum distance between the project footprint and all open stormwater conveyance systems (e.g. ditches, creeks, etc.). Ministerial projects must establish setbacks that comply with the stream setback requirements in the Conservation Regulations and Floodplain Management Regulations. Discretionary projects may establish and/or restore wider buffers zones to protect aquatic resources and structures.

Source Control BMPs

4. ✓ List and describe all source control measures included in the project design to eliminate pollutant contact with stormwater from the anticipated activities identified in the Source Control BMP Selection worksheet (Appendix E). The description must include the location and design specifications for each source control BMP.

Treatment Control BMPs

5. ✓ Priority Projects provide a completed Treatment Control BMP Selection Worksheet (Appendix F) and include a description of the location and design specifications for each treatment control BMP.
6. ✓ Provide the calculations used to design the treatment control BMPs to satisfy the numeric sizing treatment standards in Chapter 4.3. Applicants may count the site design BMPs toward meeting these numeric standards.

F. Site Plan

The site plan shall be neat and legible and shall be drawn on a 24" X 36" sheet and shall be folded to 8 ½ " by 11" prior to submittal. When two or more sheets are used to illustrate the plan view, an index sheet is required, illustrating the entire project on one (1) 24" x 36" (minimum) sheet. The entire parcel shall be identified on the plan. If only a portion of the site will be developed, the entire parcel may be shown as a detail, with the area to be developed, cleared, and/or graded drawn to an appropriate scale.

The site plan shall include all of the following:

1. ✓ Provide and legend and north arrow on the plan.
2. ✓ Maximum plan scale of 1" = 100'.
3. ✓ An outline of the entire property.
4. ✓ Provide a "limit of disturbance" line which shows the limit of soil disturbance and areas where existing vegetation is preserved.

5. ✓ All open stormwater conveyance systems (e.g. ditches, creeks) and setback distances must be delineated.
6. N/A State and Federal wetlands must be accurately delineated.
7. N/A The National Flood Insurance Program 100 Year Flood Zone and Flood Way must be delineated. (100-yr flood boundary >150 ft from Project improvements)
8. ✓ Drainage areas on the property and direction of flow. Map must extend as far outside the site perimeter as necessary to illustrate relevant drainage areas. Where relevant drainage areas are too large to depict on the map, map notes or inserts are sufficient.
9. ✓ All storm drain inlets and outlets must be located on the plan.
10. ✓ Anticipated stormwater discharge locations.
11. ✓ Location of existing and future Site Design and source Control BMPs.
12. ✓ Location of existing and future Treatment Control BMPs.
13. ✓ Location of existing and future "impervious" areas - paved areas, buildings, covered areas.

G. Post-Construction BMP Implementation and Maintenance Agreement*

1. ____ One of the maintenance mechanisms described in Chapter 5A, which is satisfactory to the Director, must be signed and executed.
2. ____ Include a signed Owner's Certification that states "I, the undersigned, certify that all land clearing, construction and development shall be done pursuant to the approved plan." This must be signed in ink on each plan submitted or on an original reproducible.

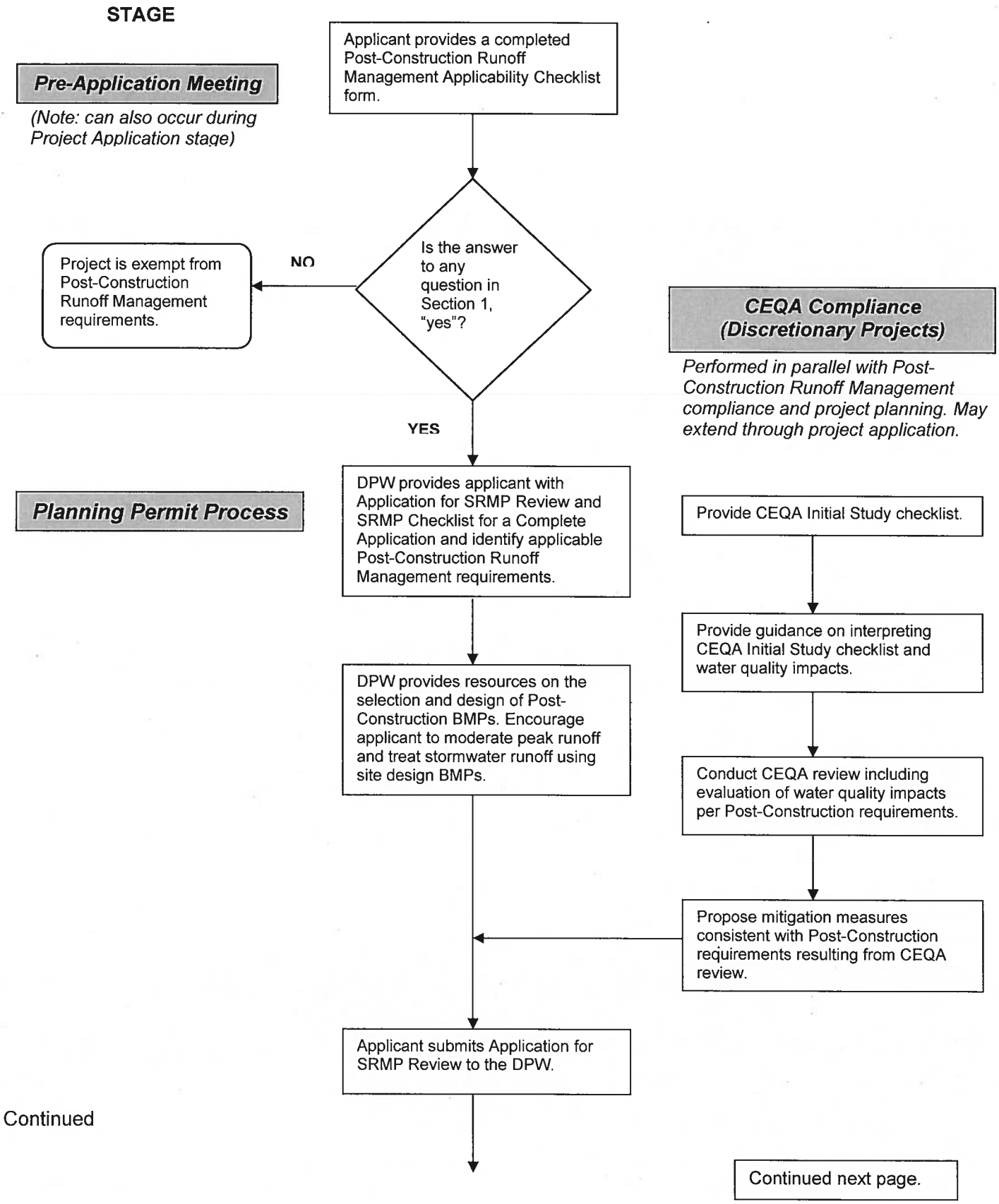
*To be executed following final design during building permit submittal.

NAPA COUNTY
POST-CONSTRUCTION RUNOFF MANAGMENT REQUIREMENTS

APPENDIX D

DEVELOPMENT PLAN REVIEW PROCESS FOR DISCRETIONARY PERMITS

NAPA COUNTY CONSTRUCTION SITE RUNOFF CONTROL REQUIREMENTS
APPENDIX D – DEVELOPMENT PLAN REVIEW PROCESS FOR DISCRETIONARY PERMITS



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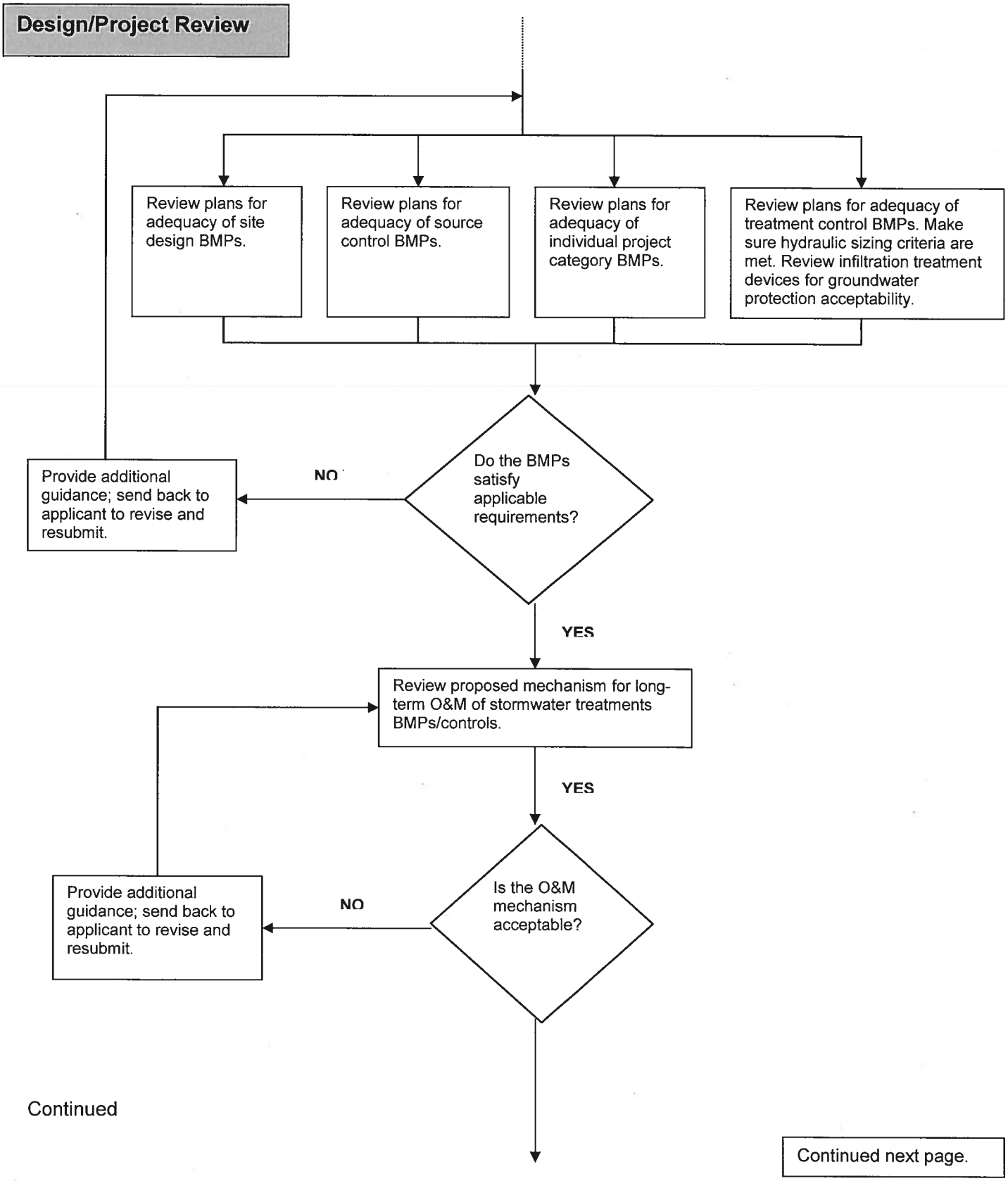
NAPA COUNTY CONSTRUCTION SITE RUNOFF CONTROL REQUIREMENTS
APPENDIX D – DEVELOPMENT PLAN REVIEW PROCESS FOR DISCRETIONARY PERMITS



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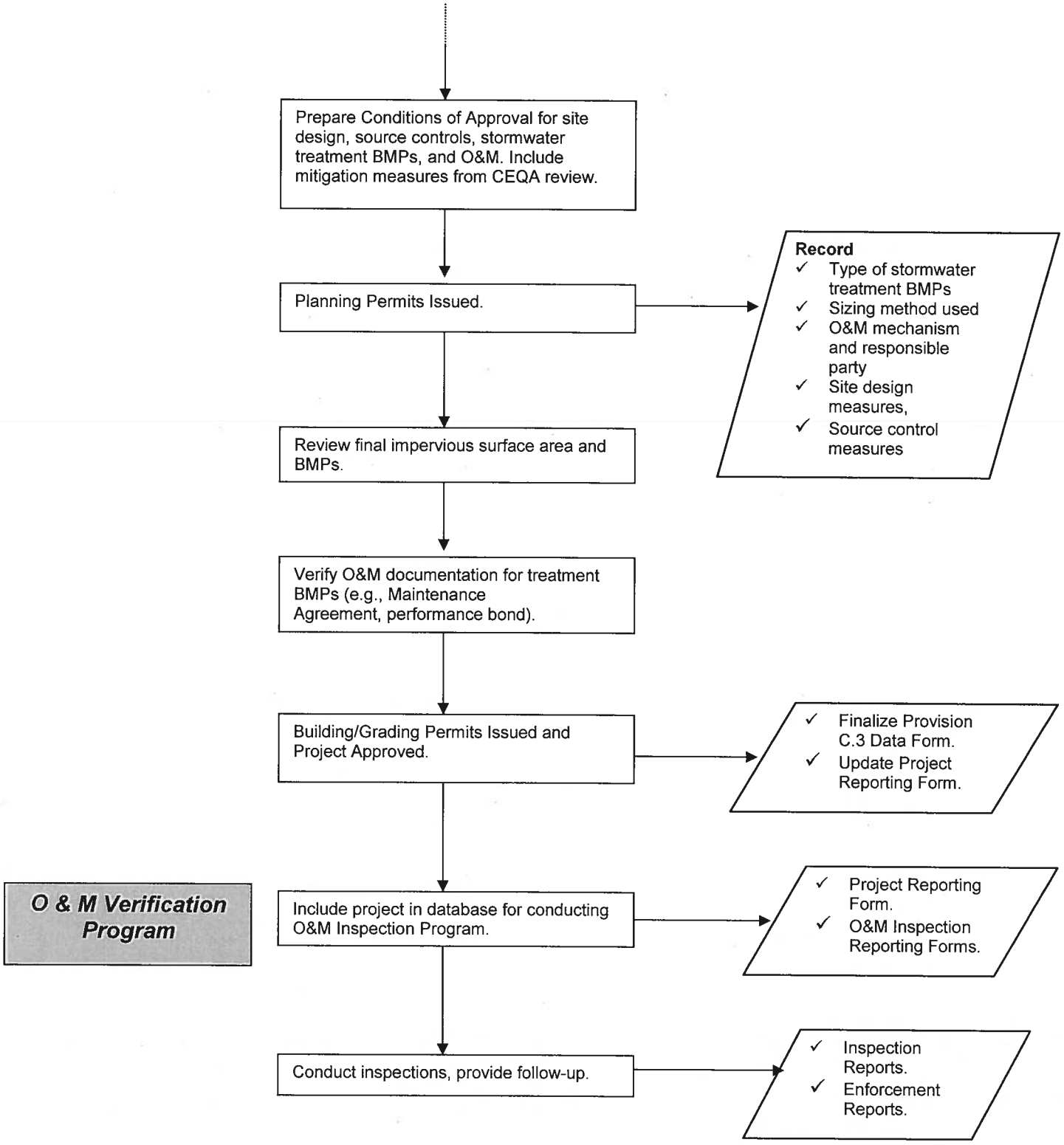
NAPA COUNTY CONSTRUCTION SITE RUNOFF CONTROL REQUIREMENTS

APPENDIX D – DEVELOPMENT PLAN REVIEW PROCESS FOR DISCRETIONARY PERMITS



NAPA COUNTY
POST-CONSTRUCTION RUNOFF MANAGMENT REQUIREMENTS

APPENDIX E

SOURCE CONTROL BMP SELECTION WORKSHEET

NAPA COUNTY POST-CONSTRUCTION RUNOFF MANAGEMENT REQUIREMENTS
APPENDIX E – SOURCE CONTROL BMP SELECTION WORKSHEET

All Standard and Priority Projects must complete and sign the Source Control BMP Selection Worksheet and submit it with their Stormwater Runoff Management Plan (SRMP).

Date of Application: _____

Project Number: *(For County Use Only)*

Type of Application: ☒ Use Permit ☐ Building Permit ☐ Grading Permit

Project Location or Address: 849 Zinfandel Ln., St. Helena, CA

Project Name: Raymond Vineyard And Cellar

Property Owner Name: Boisset Family Estates

Applicant's Name: Summit Engineering Inc. (Jasper Lewis-Gehring)

☐ Owner ☐ Contractor ☒ Engineer/Architect ☐ Developer

Applicant's Address: 463 Aviation Blvd. Ste. 200, Santa Rosa, CA 95403

Applicant's Phone: 707-527-0775 **Fax:** _____ **E-mail:** jasper@summit-sr.com

Parcel/Tract #: _____ **Lot #:** _____ **APN:** 30-270-013

Fill out the table below to indicate which Source Control BMPs in Chapter 4.2 apply to your project.

Check box to indicate proposed activity	Land Use/Activities	Limited Exclusion (Check box if project is excluded)	Source Control BMP Standard
	Roads and driveways.	None	4.2.A
√	Parking Areas	None	4.2.B
	New or Reconstructed Stormwater Conveyance Systems	None	4.2.C
	Storm drain Inlets and open channels or creeks.	☐ Detached Residential Homes	4.2.D
√	Landscaping	None	4.2.E
	Trash Storage Areas.	☐ Detached Residential Homes	4.2.F
	Pools, Spas, and Fountains.	None	4.2.G
	Roofs, Gutters, and Downspouts.	None	4.2.H
	Loading and Unloading Dock Areas	None	4.2.I
	Outdoor Material Storage Areas.	☐ Detached Residential Homes	4.2.J
	Processing Areas.	None	4.2.K
	Vehicle and Equipment Repair and Maintenance Areas	☐ Detached Residential Homes	4.2.L
	Vehicle and Equipment Wash Areas	☐ Detached Residential Homes	4.2.M
	Food Service Equipment Cleaning	None	4.2.N
	Interior Floor Drains.	None	4.2.O
	Fueling Areas.	None	4.2.P

Incorrect information on proposed activities or uses of a project may delay your project application(s) or permit(s).

I declare under penalty of perjury, that to the best of my knowledge, the information presented herein is accurate and complete.

Name of Owner or Agent (Please Print):	Title:
Lisa Heisinger	VP Operations
Signature of Owner or Agent:	Date:
	8/14/13

NAPA COUNTY
POST-CONSTRUCTION RUNOFF MANAGMENT REQUIREMENTS

APPENDIX F

TREATMENT CONTROL BMP SELECTION WORKSHEET

NAPA COUNTY POST-CONSTRUCTION RUNOFF MANAGEMENT REQUIREMENTS
APPENDIX F - TREATMENT CONTROL BMP SELECTION WORKSHEET

This worksheet was developed to help you with the selection of a Treatment Control BMP or combination of Treatment Control BMPs to remove anticipated pollutants, to the maximum extent practicable, from stormwater runoff generated during the use of the project. All project applications subject to Treatment Control BMP requirements must submit this worksheet with their SRMP.

Date of Application: _____

Type of Application: ☒ Use Permit ☐ Building Permit ☐ Grading Permit

Project Number:
(For county Use Only)

Project Location or Address: 849 Zinfandel Ln., St. Helena, CA

Project Name: Raymond Vineyard And Cellar

Property Owner Name: Boisset Family Estates

Applicant's Name: Summit Engineering Inc. (Jasper Lewis-Gehring)

☐ Owner ☐ Contractor ☒ Engineer/Architect ☐ Developer

Applicant's Address: 463 Aviation Blvd. Ste. 200, Santa Rosa, CA 95403

Applicant's Phone: 707-527-0775 **Fax:** _____ **E-mail:** jasper@summit-sr.com

Parcel/Tract #: _____ **Lot #:** _____ **APN:** 30-270-013

Step 1: Determine Anticipated Pollutants of Concern
Use the table below to determine the types of anticipated pollutants your project may generate based on land use type.

Check Box to Indicate Proposed Land Use	Project Pollutant Sources	Pollutants of Concern	If you checked a box next to a land use that may potentially generate a pollutant or stressor, explain why that pollutant or stressor is or is not anticipated to be generated by the proposed project.
✓	Lawns, Landscaping, and Parks	Sediment (coarse and fine) Nutrients (dissolved and particulate) Pesticides, pathogens, trash and debris	Not Anticipated - Sediment (landscaped with plants), Nutrients & Pesticides (biodynamic vineyard and garden practices to not allow inorganic pesticides or fertilizers), Trash & Debris (small area, closed to the public, minimal foot traffic)
✓	Parking Lots and Driveways	Sediment (fine) Metals (dissolved and particulate) TPH, trash	Anticipated - Sediment, Metals, TPH (visitor and vehicle usage) Not Anticipated - Trash (existing trash receptacles near parking area)
	Roads and Highways	Sediment (coarse and fine) Metals (dissolved and particulate) TPH, PAH, trash and debris	
	Food-Related Commercial	Pathogens, oil and grease	
	Animal-Related Commercial	Pathogens	
	Auto-Related Commercial	Metals (dissolved and particulate) TPH, PAH, surfactants	
	Industrial	Sediment (coarse and fine) Metals (dissolved and particulate) TPH, PAH, PCB, pH, surfactants	

Step 2: Determine Conditions of Concern for Receiving Waters
Check off the watershed your project is located in to determine the conditions of concern downstream from your project. This information will help you select treatment control BMP(s) that maximize the removal of pollutants that are already impairing downstream receiving waters.

NAPA COUNTY POST-CONSTRUCTION RUNOFF MANAGEMENT REQUIREMENTS
APPENDIX F - TREATMENT CONTROL BMP SELECTION WORKSHEET

☒ **Napa River and tributaries**
- Sediment
- Nutrients
- Pathogens
- Mercury
- Nickel
- Selenium
- Furan Compounds
- Chlordane
- Diazinon
- PCBs

☐ **Putah Creek and tributaries**
- Mercury
- Nickel
- Selenium
- Furan Compounds
- Chlordane
- Diazinon
- PCBs

☐ **Susuin Creek and tributaries**
- Mercury
- Nickel
- Selenium
- Furan Compounds
- Chlordane
- Diazinon
- PCBs

Step 3: Select Treatment Control BMPs

Based upon your list of anticipated pollutants of concern (Step 1) and the conditions of concern downstream of your project (Step 2) you are ready to select the treatment control BMPs that maximize the removal of these pollutants. Using the table below, break your project into discrete drainage areas and list the land uses and associated pollutants of concern within each drainage area. Then refer to the Treatment Control BMP Selection Matrix to select BMPs for each drainage area that maximize the removal of anticipated pollutants.

Note: If the project is anticipated to generate one or more pollutants (Step 1) that the receiving water is listed for, select one or more BMPs from Treatment Control BMP Selection Matrix (Table 5) that maximize the removal for those pollutants. Any pollutants the project is expected to generate that are also causing a Clean Water Act section 303(d) impairment of the downstream receiving shall be given top priority in selecting treatment BMPs.

Basin	Anticipated Activities	Anticipated Pollutants	Treatment BMP	Treatment BMP Performance
1	Parking Lot	Sediment, Metals, TPH	Bioswale or Bioretention	Good/Fair or Good

Note that site conditions (soil type, groundwater elevation), size of the project, and other factors may limit your options for treatment control BMPs. If you cannot design a treatment control BMP or combination of treatment control BMPs into your project design, use the table below to list better performing treatment control BMPs and explain why they cannot be incorporated into the project design.

Basin	Treatment Control BMP	Statement of Impracticability

NAPA COUNTY POST-CONSTRUCTION RUNOFF MANAGEMENT REQUIREMENTS
APPENDIX F - TREATMENT CONTROL BMP SELECTION WORKSHEET

Treatment Control BMP Selection Matrix.

Note: The Treatment control BMP Selection Matrix is provided for guidance purposes only. The performance of any given BMP may depend on the pollutant loading generated as well as local site conditions such as soil type and topography. The selection process must take into account the suitability of the BMP for the site. Alternative treatment control BMPs not identified in the matrix below may be approved at the discretion of the Director, provided the alternative BMP is as effective, or more effective, in the removal of pollutants of concern as other feasible BMPs listed in the matrix.

BMP Type	BMP	Constituent/Performance (G = Good, F = Fair, P = Poor)										
		Coarse Sed	Fine Sed	NO_3	Total N	Total P	Pb	Zn	Cu	Pathogens	Oil and Grease	Trash and Debris
Detention Basins	Wet Pond	G	G	P	F	F	G	G	F	F	NR	G
	Extended Wet Pond	G	G	F	F	G	G	G	P	F	NR	G
	Extended Dry Pond	G	F	P	F	P	F	F	F	P	NR	G
Water Quality Wetlands	Shallow Wetlands	G	G	F	P	F	F	G	F	G	NR	G
	Extended Detention Wetland	G	G	F	P	F	F	G	F	G	NR	G
Biofilters (Horizontal)	Bioswale	G	F	P	F	F	G	F	F	P	F	F
	Filter Strip	G	F	P	F	F	G	F	F	P	F	F
Filters (Vertical)	Sand Filter	G	G	P	F	F	G	G	F	F	G	G
	Media Filter	G	G	P	F	F	G	G	G	F	F	NR
	Bioretention	G	G	P	G	G	G	G	G	P	G	NR
Solid Separators	Rotational Flow	G	F	P	F	F	F	F	F	P	G*	G
	Multi-Chamber	F	P	P	F	P	F	F	P	P	F	G
Inserts	Catch Basin Insert	G	F	P	F	F	F	F	F	P	G*	G

Incorrect information on proposed activities or uses of a project may delay your project application(s) or permit(s).

I declare under penalty of perjury, that to the best of my knowledge, the information presented herein is accurate and complete.

Name of Owner or Agent (Please Print):	Title:
Lisa Heisinger	VP Operations
Signature of Owner or Agent:	Date:
	8/14/13

Attachment 1:

Project Overview

PROJECT OVERVIEW

Introduction

The Raymond Winery Project (Project) site is located at 849 Zinfandel Lane in Saint Helena, Napa County, California. The site currently contains four winery buildings and a covered production area totaling 133,835 square feet, parking, paved driveways, a residence including a pool and associated facilities. The proposed Project improvements include expanding the existing parking lot to create an additional 36 parking spaces, designating 105 valet/overflow parking spaces along the access road for large events, and replacing the pool at the residence with vegetated landscaping. The additional parking spaces will accommodate the proposed marketing plan. The proposed improvements are located within developed areas adjacent to the existing parking lot and residence as shown on the Site Map (Attachment 3).

The Project proposes an increase in the impervious surface of 14,269 square feet (a net increase of 13,077 square feet when accounting for the pool area being returned to pervious surfacing). The entirety of the impervious surface increase is from the new parking lot southwest of the existing parking lot (the additional valet/overflow parking spaces will not result in a change in surface cover, which is currently soil, as they are only to be used during large events or as overflow parking). The surface of the new parking lot will consist of decomposed granite or a similar material to infiltrate some of the rainfall. This report concludes that the Project is a Priority Project under the Napa County Post-Construction Runoff Management Requirements because the Project proposes more than 25 additional parking spaces.

Pre-and Post-Construction Runoff Conditions

Stormwater runoff from the existing parking lot, winery buildings, covered production areas, pathways and other winery facilities is collected in ditches and storm drain inlets throughout the site. The stomwater drains to the east corner of the property via 12 inch and 24 inch pipes, travelling along the south and north sides of the building respectively. The residence runoff including the pool area drains to surrounding landscape and does not join the storm drain pipe network. A sump is located at the most downstream end of the stormdrain network (which is also the lowest point in elevation along the property, see Attachment 2). The sump pumps to an adjacent ditch, which travels south easterly along a neighboring property and eventually reaches an irrigation pond located on Beckstoffer Vineyards property (see Attachment 2). The irrigation pond has an overflow pipe to drain excess water to a nearby ditch and eventually into the Napa River. The Napa River is located to the northeast of the Project site and the 100-year floodplain crosses over the eastern corner of the property where the sump is located. Multiple storm drains from neighboring properties outlet to the sump manhole, as well as other downstream manholes, and combine with the Project's existing condition stormwater and drain to the Beckstoffer irrigation pond.

Runoff from the Project site, with the exception of the proposed parking lot, will follow the same path in the post-construction condition as in the pre-construction condition. The new parking lot will be graded so that stormwater runoff will flow away from the existing parking lot and therefore not contribute to an increase in stormwater entering the storm drain network, sump, or irrigation pond on Beckstoffer Vineyards. Mitigation measures will be designed to maintain pre-construction flow-rates in the post-construction condition, and to the extent practical, match post-construction volumes to pre-construction volumes for the 2-year, 24-hour storm event. Detailed design of the post-construction drainage improvements will be prepared during the

Project design phase. Stormwater runoff from the newly landscaped area (that will replace the existing pool) will infiltrate and/or drain to surrounding landscape as is consistent with the existing Project condition.

The average slope between the Project footprint and Napa River is approximately 0.4%. The proposed parking lot is approximately 5,500 ft from Napa River and 2,100 ft from Beckstoffer Vineyard's irrigation pond, however the runoff from the new parking lot will be discharged locally on the Project site and will not reach the two aforementioned water bodies.

Runoff Analysis

The pre- and post-construction runoff conditions were compared using a hydrologic model of the site developed using Hydraflow-Hydrograph software. The only area of the Project that required modeling was the new parking area, because the remaining Project site runoff will not increase impervious surfaces. A sub-watershed was delineated in the new parking area for the pre- and post-construction site conditions (see Attachment 4). The pre- and post-construction hydrographs for the 2-year, 24-hour storm event were compared for the region. The result was a calculation of the total volume and rate increase in the post-construction condition for the new parking area.

Precipitation data from the National Oceanic and Atmospheric Administration's (NOAA) Atlas 14 Point Precipitation Frequency Estimates (see Attachment 5) was entered into the Hydraflow software to create an Intensity-Duration-Frequency (IDF) curve. Hydrographs for both the pre- and post-construction Project condition were created using the SCS curve number method (see Attachments 6 and 7). Times of concentrations were set to Napa County's minimum of 10 minutes because the values calculated by TR-55 method were less than 10 minutes.

By comparing the pre- and post-Project runoff conditions, it was determined that the Project will result in a total increase in runoff flow rate of 0.148 cubic feet per second and a total volume increase of 1,994 cubic feet (see Attachment 8).

Post-Construction BMPs

In order to mitigate the additional runoff caused by the Project improvements, Site Design Best Management Practices (BMPs), Source Control BMPs, and Treatment Control BMPs will be incorporated into the Project design.

Site Design BMPs

The post-construction Project condition has greater than 10,000 sf of new and redeveloped impervious surfaces (not including roadways and driveways) and therefore must incorporate Site Design BMPs to maintain pre-project rainfall runoff characteristics for the 2-year, 24-hour storm event.

During the Project schematic design process, attempts were made to minimize additional impervious surfaces, use semi-pervious surfaces where feasible, and to drain stormwater runoff from the parking lot to adjacent landscaping features.

Based on soil infiltration rates and site practicability, features such as depressed planting areas or infiltration trenches will be incorporated into the site design to infiltrate as much runoff volume as possible into the ground. Controlled outlets will be placed at the downstream end of the features in order to control the runoff

rate for any flow that cannot be entirely infiltrated into the ground. These features will be placed near the new parking area to capture runoff from parking lot. Any additional volume that cannot be infiltrated will overflow into the adjacent vineyards. Potential locations of Site Design BMPs, sized to accommodate the added runoff volume due to the impervious parking lot, are shown in the Post-Construction Site Hydrology Map (Attachment 4).

Source Control BMPs

Below are the Source Control BMPs that will be included in the Project design to aid in minimizing pollutant contact with stormwater.

- Parking areas will be designed to minimize impervious surface areas and graded to direct runoff to nearby Site Design BMPs
- Runoff from parking areas will be treated to remove oil and petroleum hydrocarbons
- Energy dissipaters constructed of riprap will be specified at the outlets of new swales to minimize erosion
- Vegetated swales (in lieu of lined-ditches) with check dams will be incorporated into the design to treat runoff and to control flow
- Existing trees, shrubs and groundcover will be preserved where feasible
- Plant species tolerant of saturated soil conditions will be specified in landscaped areas to be utilized for stormwater infiltration and detention

Treatment Control BMPs

The Project will include two different land uses: landscaping and parking lots. The potential pollutants of concern for landscaping listed in Appendix F of the Napa County Post-Construction Runoff Management Requirements include sediment, nutrients, pesticides, pathogens, trash and debris. Below are the Source Control BMPs that are included in the Project design to aid in minimizing pollutant contact with stormwater. The small new area of landscaping (approximately 1,200 sf) will be planted to minimize sediment. No inorganic fertilizers or pesticides will be used because the surrounding vineyards and garden areas are biodynamic. Trash and debris are not expected because the location of the landscaping will have minimal foot traffic as it is closed to the public. The proposed landscaping will drain to adjacent landscaping and not to the existing storm drain system. Therefore, all of the listed pollutants of concern are not anticipated and no Treatment BMPs were recommended for the landscaping of the existing pool.

The proposed parking lot is 14,269 sf in area. The Project owners are considering the use of decomposed granite or some other cover type that is semi-pervious to encourage rainwater infiltration. Of the pollutants of concern listed in Appendix F (fine sediment, metals, TPH, and trash) trash is the only pollutant not expected because of proposed nearby trash and recycling receptacles. The remaining pollutants are expected and will be treated with the proposed Treatment BMPs.

The Project site is within the Napa River watershed. However, runoff from the proposed improvements will discharge to the surface from onsite and not routed to the existing drainage network, which eventually

reaches the Napa River. Because the Napa River is not a receiving water body for the Project improvements, the downstream conditions of concern listed in Appendix F did not affect the Treatment BMP selection process.

The Treatment Control BMP Selection Matrix in Appendix F was consulted for the anticipated pollutants and Project site limitations. Based on the matrix, both bioswale and bioretention appear to be good BMPs for the Project site. The Treatment Control BMPs will also act simultaneously as flow control and volume retention. They will be placed adjacent to the proposed parking lot and will have controlled outlets to retain the added volume (1,994 cubic ft) for the 2-yr, 24-hr storm event. This volume is greater than that generated from the 85th percentile 24-hour runoff event, which Napa County recommends using in sizing a Treatment Control BMP. Therefore, it is assumed that the BMP will adequately mitigate for both Site Design and Treatment Control. During the Project design phase, the Treatment Control BMP will be specifically designed and sized to treat the additional runoff created by the Project.

Post-Construction BMP Implementation and Maintenance Agreement

Upon completion of the Project design and coinciding with the building application, a document will be prepared and executed that will stipulate the implementation and maintenance of the final post-construction BMPs.

Attachment 2:

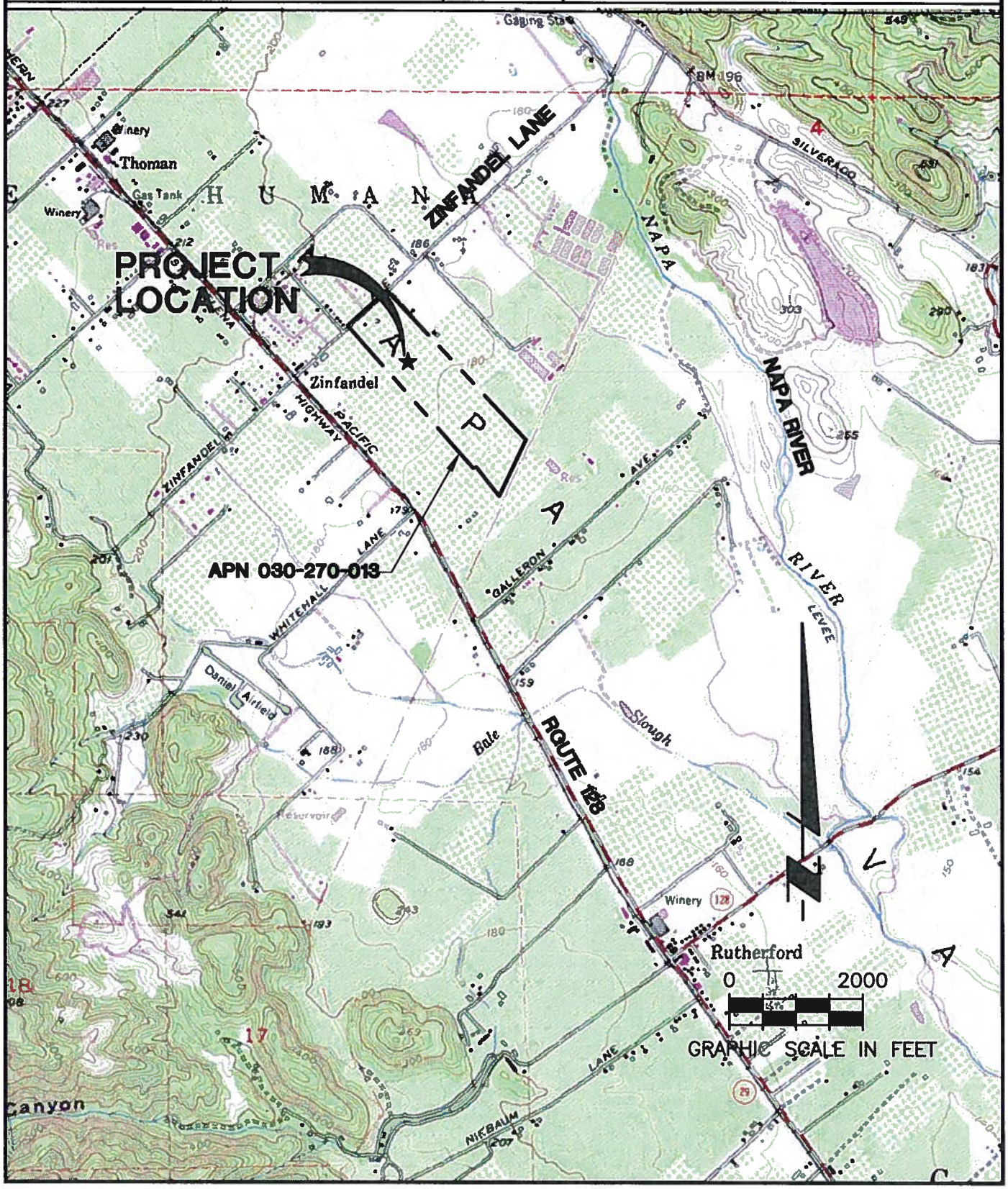
Vicinity Map

RAYMOND WINERY AND CELLAR
849 ZINFANDEL LANE
ST. HELENA, CA 94574
APN 030-270-013

SUMMIT

VICINITY MAP

PROJECT NO. 2010080 DATE 05-09-2011
BY KO CHK GG SHT NO 1 OF 1

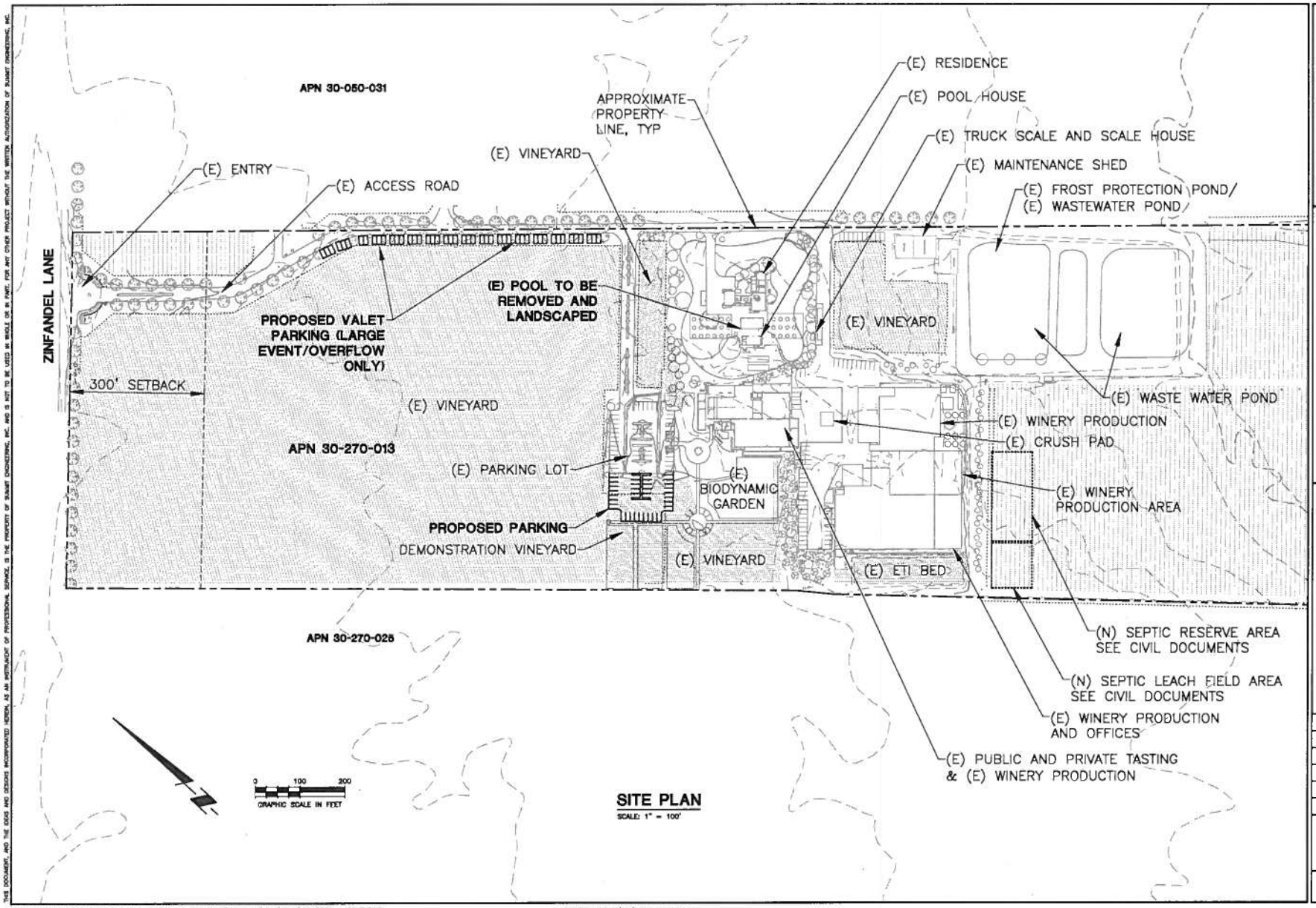


SUMMIT ENGINEERING INC.
463 AVIATION BLVD. #200
SANTA ROSA, CA 95403
707.527.0775
FAX 707.527.0212

May 09, 2011 - 5:37pm P:\Project\2010\2010080 Raymond Winery UP-WaterWWFS and UP\CAD\Wastewater\10080-VICINITY MAP.dwg

Attachment 3:

Site Map



SITE PLAN
SCALE: 1" = 100'

SUMMIT
Summit Engineering, Inc
463 Aviation Blvd., Suite 200 • Santa Rosa, CA 95403
707-527-0775 • www.summit-sr.com

RAYMOND WINERY
849 ZINFANDEL LANE
ST HELENA, CA 94574
APN 30-270-013

USE PERMIT APPLICATION

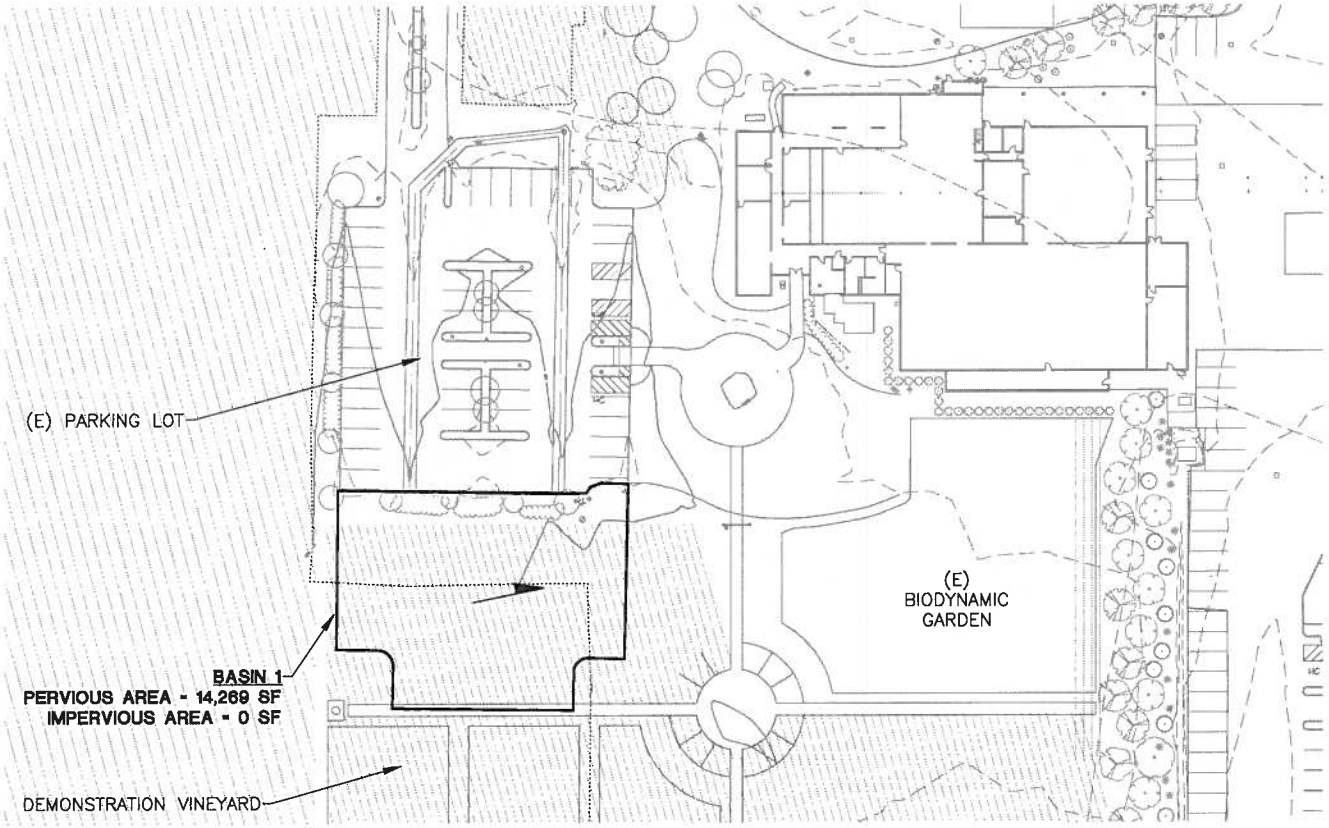
SITE PLAN

08-15-2013
PERMIT SUBMITTAL

DATE: 08-15-2013
JOB NO: 2010080
SCALE: AS SHOWN
DRAWN: TF
CHECKED: JP
SHEET
UP1

Attachment 4:

Pre-Construction and Post-Construction Watersheds



SITE PLAN
SCALE: 1" = 30'

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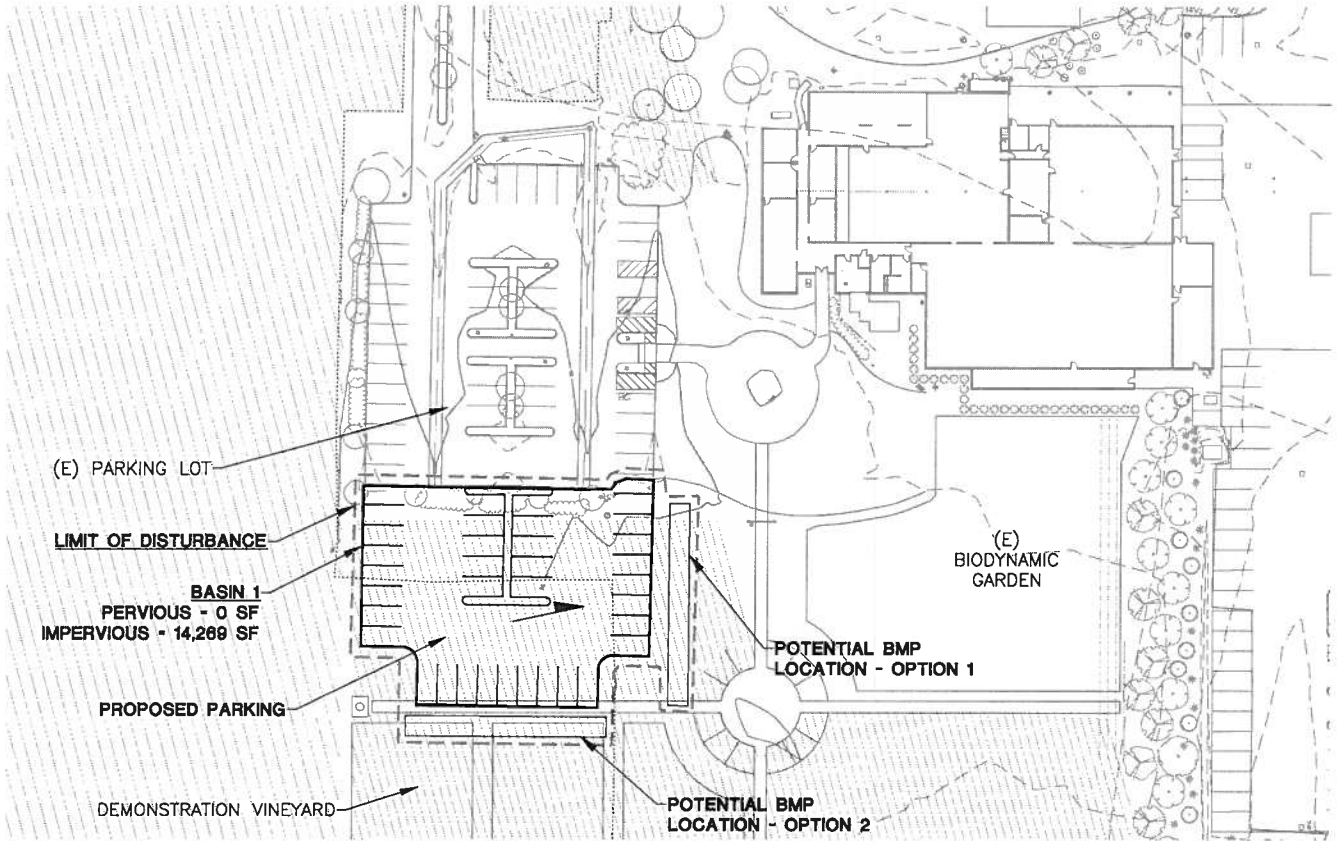
RAYMOND WINERY
849 ZINFANDEL LANE
ST HELENA, CA 94574
APN 30-270-013

USE PERMIT APPLICATION

SITE HYDROLOGY MAP
PRE-CONSTRUCTION

08-13-2013	PERMIT SUBMITTAL

DATE:	08-15-2013
JOB NO:	2010080
SCALE:	AS SHOWN
DRAWN:	TF
CHECKED:	JP
SHEET	H1



SITE PLAN

SCALE: 1" = 30'

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RAYMOND WINERY
849 ZINFANDEL LANE
ST HELENA, CA 94574
APN 30-270-013

USE PERMIT APPLICATION

SITE HYDROLOGY MAP
POST-CONSTRUCTION

08-15-2013	PERMIT SUBMITTAL

DATE:	08-15-2013
JOB NO:	2010080
SCALE:	AS SHOWN
DRAWN:	TF
CHECKED:	JP
SHEET	H2

P:\PROJECT\2010\2010080 RAYMOND WINERY UP-WATERWWFS AND UP\CAD\CIVIL\2010080 - SRMP.DWG

PLOTTED ON: 8/15/2013 3:59 PM

Attachment 5:

NOAA Atlas 14 Precipitation Data

NOAA Atlas 14, Volume 6, Version 2
Location name: Saint Helena, California, US*
Coordinates: 38.4846, -122.4330
Elevation: 185ft*
* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.136 (0.121-0.154)	0.165 (0.147-0.188)	0.204 (0.181-0.233)	0.237 (0.208-0.272)	0.282 (0.238-0.337)	0.317 (0.261-0.388)	0.354 (0.283-0.446)	0.392 (0.304-0.510)	0.446 (0.330-0.608)	0.488 (0.348-0.692)
10-min	0.194 (0.173-0.221)	0.237 (0.210-0.269)	0.293 (0.259-0.334)	0.339 (0.298-0.391)	0.404 (0.341-0.483)	0.454 (0.374-0.557)	0.507 (0.406-0.639)	0.562 (0.436-0.731)	0.639 (0.473-0.871)	0.700 (0.499-0.992)
15-min	0.235 (0.209-0.267)	0.286 (0.254-0.325)	0.354 (0.314-0.404)	0.410 (0.360-0.472)	0.488 (0.412-0.584)	0.549 (0.453-0.673)	0.613 (0.491-0.772)	0.680 (0.528-0.884)	0.772 (0.572-1.05)	0.846 (0.603-1.20)
30-min	0.350 (0.311-0.397)	0.426 (0.378-0.484)	0.527 (0.467-0.601)	0.611 (0.536-0.703)	0.727 (0.614-0.869)	0.818 (0.674-1.00)	0.912 (0.731-1.15)	1.01 (0.785-1.32)	1.15 (0.852-1.57)	1.26 (0.898-1.79)
60-min	0.517 (0.460-0.587)	0.629 (0.559-0.715)	0.778 (0.689-0.887)	0.901 (0.791-1.04)	1.07 (0.906-1.28)	1.21 (0.995-1.48)	1.35 (1.08-1.70)	1.49 (1.16-1.94)	1.70 (1.26-2.32)	1.86 (1.33-2.64)
2-hr	0.789 (0.702-0.896)	0.958 (0.851-1.09)	1.18 (1.04-1.34)	1.35 (1.19-1.56)	1.59 (1.34-1.90)	1.77 (1.46-2.17)	1.95 (1.56-2.46)	2.14 (1.66-2.78)	2.38 (1.77-3.25)	2.57 (1.83-3.65)
3-hr	1.02 (0.903-1.15)	1.23 (1.09-1.40)	1.51 (1.34-1.72)	1.73 (1.52-1.99)	2.02 (1.71-2.42)	2.24 (1.85-2.75)	2.46 (1.97-3.10)	2.68 (2.08-3.49)	2.97 (2.20-4.06)	3.20 (2.28-4.53)
6-hr	1.54 (1.37-1.74)	1.86 (1.66-2.12)	2.28 (2.02-2.60)	2.61 (2.29-3.01)	3.04 (2.57-3.64)	3.36 (2.77-4.12)	3.68 (2.95-4.64)	3.99 (3.10-5.20)	4.41 (3.26-6.01)	4.71 (3.36-6.68)
12-hr	2.19 (1.94-2.48)	2.69 (2.39-3.06)	3.32 (2.94-3.79)	3.83 (3.36-4.40)	4.49 (3.79-5.37)	4.98 (4.10-6.10)	5.47 (4.38-6.89)	5.95 (4.62-7.74)	6.59 (4.88-8.98)	7.06 (5.03-10.0)
24-hr	3.05 (2.74-3.46)	3.82 (3.43-4.34)	4.80 (4.30-5.46)	5.57 (4.96-6.39)	6.60 (5.72-7.78)	7.37 (6.28-8.84)	8.14 (6.79-9.95)	8.90 (7.26-11.1)	9.92 (7.81-12.9)	10.7 (8.17-14.2)
2-day	4.01 (3.60-4.55)	5.11 (4.59-5.80)	6.50 (5.83-7.40)	7.61 (6.77-8.72)	9.06 (7.85-10.7)	10.1 (8.64-12.2)	11.2 (9.36-13.7)	12.3 (10.0-15.4)	13.7 (10.8-17.8)	14.8 (11.3-19.7)
3-day	4.62 (4.16-5.25)	5.94 (5.34-6.75)	7.62 (6.83-8.68)	8.94 (7.96-10.3)	10.7 (9.25-12.6)	12.0 (10.2-14.3)	13.2 (11.1-16.2)	14.5 (11.8-18.2)	16.2 (12.8-21.0)	17.5 (13.3-23.3)
4-day	5.12 (4.61-5.81)	6.61 (5.94-7.51)	8.49 (7.61-9.67)	9.97 (8.88-11.4)	11.9 (10.3-14.0)	13.4 (11.4-16.0)	14.8 (12.3-18.1)	16.2 (13.2-20.3)	18.1 (14.2-23.4)	19.5 (14.9-26.0)
7-day	6.37 (5.72-7.23)	8.16 (7.33-9.27)	10.4 (9.35-11.9)	12.2 (10.9-14.0)	14.6 (12.7-17.2)	16.4 (13.9-19.6)	18.1 (15.1-22.1)	19.8 (16.2-24.8)	22.1 (17.4-28.7)	23.8 (18.2-31.8)
10-day	7.26 (6.52-8.23)	9.26 (8.32-10.5)	11.8 (10.6-13.4)	13.8 (12.3-15.8)	16.5 (14.3-19.4)	18.4 (15.7-22.1)	20.4 (17.0-24.9)	22.3 (18.2-27.9)	24.8 (19.5-32.1)	26.7 (20.4-35.6)
20-day	9.57 (8.61-10.9)	12.2 (11.0-13.9)	15.5 (13.9-17.7)	18.1 (16.1-20.8)	21.5 (18.6-25.3)	23.9 (20.4-28.7)	26.3 (22.0-32.2)	28.7 (23.4-35.9)	31.7 (25.0-41.1)	34.0 (26.0-45.3)
30-day	11.4 (10.2-12.9)	14.5 (13.1-16.5)	18.4 (16.5-21.0)	21.4 (19.1-24.6)	25.3 (21.9-29.8)	28.1 (23.9-33.6)	30.8 (25.7-37.6)	33.4 (27.2-41.8)	36.7 (28.9-47.6)	39.2 (30.0-52.3)
45-day	13.9 (12.5-15.7)	17.6 (15.8-20.0)	22.2 (19.9-25.3)	25.7 (22.9-29.5)	30.2 (26.1-35.5)	33.3 (28.4-40.0)	36.4 (30.3-44.5)	39.3 (32.0-49.2)	42.9 (33.8-55.6)	45.6 (34.8-60.8)
60-day	16.5 (14.8-18.7)	20.8 (18.7-23.7)	26.1 (23.4-29.7)	30.1 (26.8-34.5)	35.0 (30.3-41.3)	38.5 (32.8-46.2)	41.8 (34.9-51.2)	45.0 (36.7-56.3)	48.9 (38.5-63.4)	51.7 (39.6-69.0)

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

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

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

Attachment 6:

NRCS Soil Data

Hydrologic Soil Group—Napa County, California
(Raymond Vineyard)

Map Scale: 1:6,700 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Napa County, California
Survey Area Data: Version 4, Dec 10, 2007

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 2, 2010—Feb 17, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Napa County, California (CA055)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
170	Pleasanton loam, 0 to 2 percent slopes	B	66.0	100.0%
Totals for Area of Interest			**66.0**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Saturated Hydraulic Conductivity (Ksat)—Napa County, California
(Raymond Vineyard)

Map Scale: 1:6,700 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

= 9.0000

Not rated or not available

Soil Rating Lines

= 9.0000

Not rated or not available

Soil Rating Points

= 9.0000

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Napa County, California
Survey Area Data: Version 4, Dec 10, 2007

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 2, 2010—Feb 17, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Saturated Hydraulic Conductivity (Ksat)

Saturated Hydraulic Conductivity (Ksat)— Summary by Map Unit — Napa County, California (CA055)				
Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
170	Pleasanton loam, 0 to 2 percent slopes	9.0000	66.0	100.0%
Totals for Area of Interest			**66.0**	**100.0%**

Description

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Rating Options

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: *None Specified*

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

Attachment 7:

Runoff Curve Numbers

Table of Runoff Curve Numbers (SCS, 1986)

Description of Land Use	Hydrologic Soil Group			
	A	B	C	D
Paved parking lots, roofs, driveways	98	98	98	98
Streets and Roads:				
Paved with curbs and storm sewers	98	98	98	98
Gravel	76	85	89	91
Dirt	72	82	87	89
Cultivated (Agricultural Crop) Land*:				
Without conservation treatment (no terraces)	72	81	88	91
With conservation treatment (terraces, contours)	62	71	78	81
Pasture or Range Land:				
Poor (<50% ground cover or heavily grazed)	68	79	86	89
Good (50-75% ground cover; not heavily grazed)	39	61	74	80
Meadow (grass, no grazing, mowed for hay)	30	58	71	78
Brush (good, >75% ground cover)	30	48	65	73
Woods and Forests:				
Poor (small trees/brush destroyed by over-grazing or burning)	45	66	77	83
Fair (grazing but not burned; some brush)	36	60	73	79
Good (no grazing; brush covers ground)	30	55	70	77
Open Spaces (lawns, parks, golf courses, cemeteries, etc.):				
Fair (grass covers 50-75% of area)	49	69	79	84
Good (grass covers >75% of area)	39	61	74	80
Commercial and Business Districts (85% impervious)	89	92	94	95
Industrial Districts (72% impervious)	81	88	91	93
Residential Areas:				
1/8 Acre lots, about 65% impervious	77	85	90	92
1/4 Acre lots, about 38% impervious	61	75	83	87
1/2 Acre lots, about 25% impervious	54	70	80	85
1 Acre lots, about 20% impervious	51	68	79	84

*From Chow et al. (1988).

Attachment 8:

Hydraflow Hydrographs

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2013 by Autodesk, Inc. v10

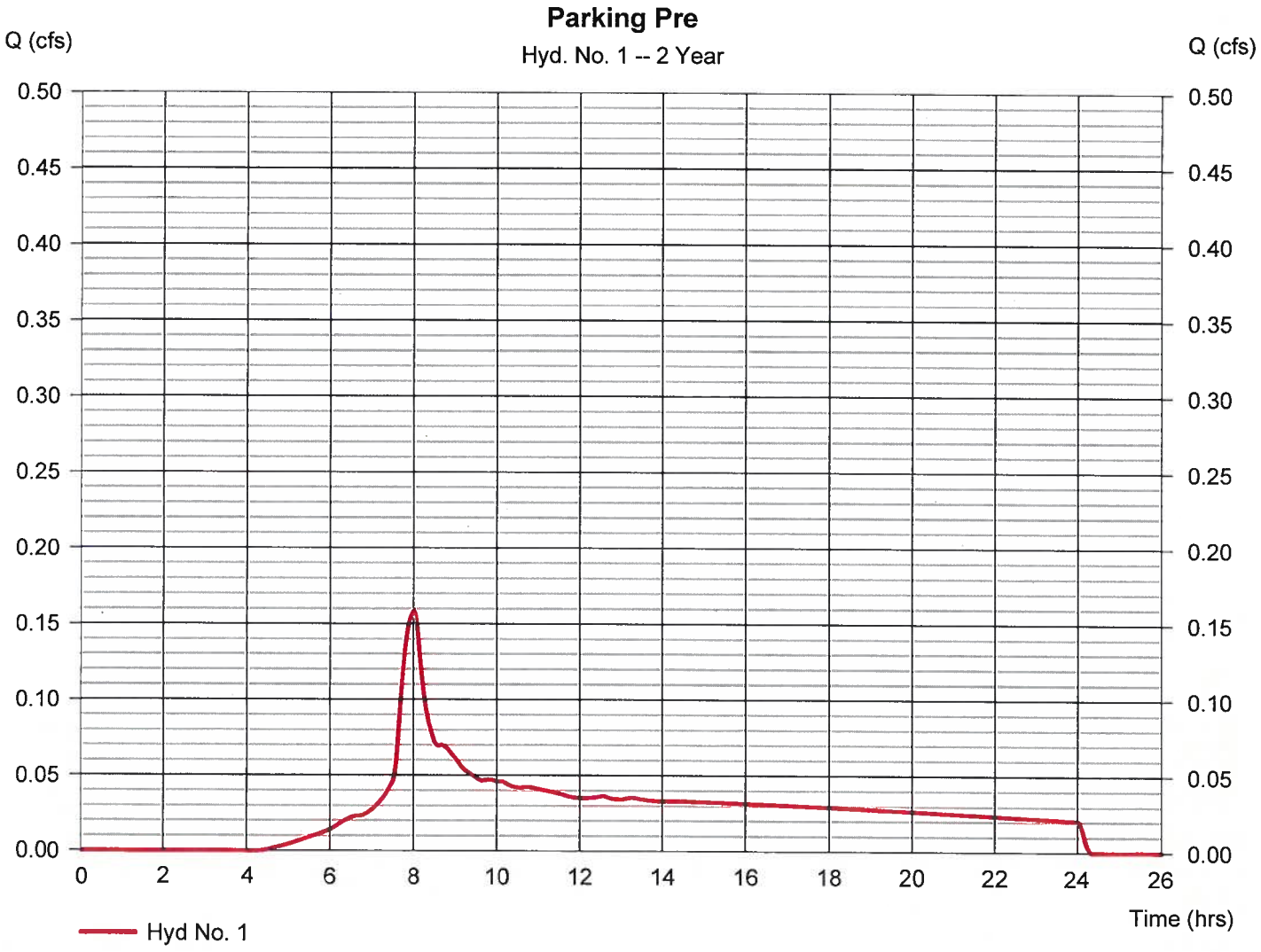
Tuesday, 07 / 30 / 2013

Hyd. No. 1

Parking Pre

Pre-Construction Runoff Volume

Hydrograph type	= SCS Runoff	Peak discharge	= 0.159 cfs
Storm frequency	= 2 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 2,435 cuft
Drainage area	= 0.330 ac	Curve number	= 81
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.82 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2013 by Autodesk, Inc. v10 — Thursday, 08 / 15 / 2013

Hyd. No. 2

Parking Post

Post-Construction Runoff Volume

Hydrograph type	= SCS Runoff	Peak discharge	= 0.307 cfs
Storm frequency	= 2 yrs	Time to peak	= 7.93 hrs
Time interval	= 2 min	Hyd. volume	= 4,429 cuft
Drainage area	= 0.330 ac	Curve number	= 98*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.82 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.330 x 98)] / 0.330