

BENNETT LANE WINERY

3340 State Highway 128
Calistoga, CA 94515

STORMWATER TECHNICAL MEMORANDUM

Project# 4108060.0
October 6, 2008



Prepared by

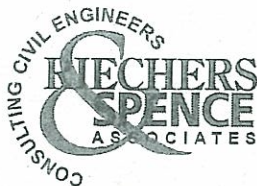


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BACKGROUND, PURPOSE AND SCOPE

Bennett Lane Winery, 3340 State Highway 128, Calistoga, proposes a winery expansion that includes the following site modifications:

1. Winery expansion to a total of 17,550 square feet;
2. Construct a new 3,650 square foot tasting room;
3. Construct a new 5,000 square foot barrel storage room;
4. Relocate and expand the customer parking lot to 22 spaces.

The purpose of this Technical Memorandum is to address the project's compliance with Federal, State and Local code with respect to stormwater runoff and potential pollutants.

The scope of this Technical Memorandum will provide background on County, State, and Federal code and guidance applicable to stormwater management of new development or redevelopment projects. Additionally, the following three elements of stormwater compliance will be addressed:

1. Pollution Prevention from Proposed Construction Activities.
2. Attenuation of Peak Discharge from Site due to increased impervious areas.
3. Post Construction Best Management Practices for Pollution Prevention.

CODE REFERENCE AND GUIDANCE

In 2003, the California Regional Water Quality Control Board (RWQCB) adopted a Phase II General Permit in compliance with National Pollution Discharge Elimination System (NPDES) requirements. This General Permit covers stormwater discharge from Small Municipal Separate Storm Sewer Systems (MS4) such as Napa County. Napa County, in turn, provided the State a Stormwater Management Plan (SWMP) on March 10, 2003 to ensure compliance with the State's General Permit (2003-0005-DWQ). As of March 10, 2003, all development projects within Napa County that disturb one acre or more must comply with the conditions of the RWQCB General Permit for Stormwater Discharge Associated with Construction Activity.

On May 20, 2004, Napa County was issued a NPDES General Permit for Municipal Stormwater. Napa County's Stormwater Management and Discharge Control Ordinance (No. 1204, et. seq. Chapter 16.28) was adopted on June 22, 2004 to establish authority and requirements for compliance with its General Permit. Specific guidance on Pollution Prevention from Proposed Construction Activities was provided on December 12, 2006 by the adoption of the "Napa County Construction Site Runoff Control Requirements."



This document requires all new construction projects with land disturbance greater than one acre to prepare a Stormwater Pollution Prevention Plan (SWPPP). All other projects are potentially subject to preparation of a Stormwater Quality Management Plan (SQMP) based on the Project Applicability Checklist provided by the aforementioned document.¹

On June 3, 2008, Napa County updated Ordinance 1240 with a new document entitled "Napa County Post-Construction Runoff Management Requirements" (herein after "Guidelines") that fulfills the County's obligation to adopt standards to require new development and redevelopment projects to incorporate Post-Construction BMP's into the project design and maintain them for the life of the project.² These measures are specifically directed to protect water quality sensitive areas listed under Section 303(d) of the Clean Water Act.

Pollution Prevention from Construction Activities

The "Napa County Construction Site Control Runoff Requirements" document specifies that prior to submittal of a building or grading permit, the following three steps must be accomplished:

Step 1: Determine Applicable Stormwater BMP Requirements (Applicant) – Applicant must complete the "Construction Site Runoff Control Applicability Checklist" to determine if the project is subject to Construction Site Runoff Control BMP requirements. Attachment A provides the Construction Applicability Checklist.

Step 2: Prepare and Submit Appropriate Plans (Applicant) – SQMP's and SWPPP's must be prepared in accordance with the requirements of Section IV, Construction Site Runoff Control Requirements.

Step 3: Determine Adequacy of Proposed Plans (Napa County Director, Public Works) – Public Works staff will review submitted plans for compliance with site control runoff requirements. Applicants disturbing 1 acre or more must submit a Notice of Intent with the State and provide a Waste Discharge Identification Number (WDID) before permits will be issued.

Step 1 above has been completed as part of this report. Area calculations for the proposed project were prepared to determine if the project would require a SWPPP as part of the building permit. These area calculations estimate that the project would disturb approximately 53,000 square feet, or 1.2 acres, and therefore require a SWPPP be

¹ Napa County Construction Site Runoff Control Requirements, December 12, 2006. Selected text from this document has been taken for use in follow on text.

² Napa County Post-Construction Runoff Management Requirements, June 3, 2008. Selected text from this document has been taken for use in follow on text.



prepared with the building permit. These calculations and Applicability Checklist are provided as Attachment A to this report.

The California Stormwater Quality Association (CASQA) provides current practices, standards, and effectiveness of Best Management Practices in its Construction Handbook. Moreover, this handbook is referenced in the "Napa County Construction Site Runoff Control Requirements" document.

Typical BMP's for this project would include:

1. Erosion control BMP's such as fiber mat blankets, straw mulch, hydromulch, Ertech Perimeter Guards, or fiber roll.
2. Designated washout areas for rinse of pollutants such as paint, cement and stucco.
3. Construction entrance to prevent tracking sediment onto publicly maintained roadways.
4. Properly maintain all litter, dumps or stockpiles to prevent contaminated discharge.
5. Property owner or designated representative shall inform all individuals of the SWPPP or SQMP requirements, prepare logs of rainfall events and compliance, and update SWPPP as appropriate for field conditions.

Attenuation of Peak Stormwater Discharge from Site (Post-Construction)

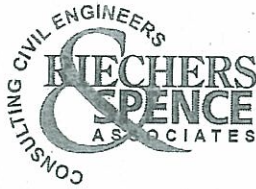
Peak stormwater runoff (discharge) from a site is controlled by the following three factors:

1. Time of concentration, or the amount of time it takes water to reach the point of concentration at the site;
2. Soils type, as in clay, sand, or loam, and;
3. Composite coefficient of runoff, or the amount of development of the site and relative permeability of the developed site.

Several methods are available to provide resulting information for stormwater peak discharge. For the purposes of this memorandum we have used the NRCS TR-20 method to determine peak stormwater runoff.

Review of topographical data for this site shows that the site slopes at 0-2 percent away from the winery to Highway 128.³ From this data, it appears that the point of concentration and subsequent measurement of time of concentration is based on the southwestern corner of the property adjacent to Highway 128.

³ Napa County Geographic Information Systems (GIS) Website Data.



The National Resources Conservation Service (NRCS) provides soils data for this site based on the Napa County Soils Survey Version 4, December 10, 2007. According to this data, the site is predominately Clearlake Clay with a Hydrologic Soils Group designation of "D".

The composite coefficient of runoff is determined by analyzing pervious and impervious surfaces on site. These areas are calculated and averaged to provide a composite "C" or "CN" value based on the hydrologic method used to calculate peak runoff from the site. The soils data, pervious area calculations and CN calculations are provided as Attachment B to this report.

Our calculations, assumptions, pre-development and post-development TR-20 peak discharge hydrographs are provided in Attachment C. Based on these calculations, runoff from the site is expected to increase by 0.57 cubic feet per second (cfs) for the 2-year 24-hour storm event.

As previously stated, the Guidelines require new development within the County provide for Attenuation of peak stormwater runoff. More specifically, the Guidelines require four steps to be performed prior to submittal of a Use Permit, Structural Building Permit, or Grading Permit:

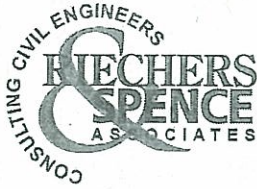
Step 1: Determine Applicable Stormwater BMP Requirements (Applicant) – Applicant must complete the "Applicability Checklist" to determine if the project is subject to Post-Construction Stormwater BMP requirements.

Step 2: Prepare and Submit Appropriate Plans (Applicant) – Standard and Priority Projects must submit a complete Stormwater Runoff Management Plan (SRMP)

Step 3: Determine Adequacy of Proposed Plans (Napa County Director, Public Works)

Step 4: Assure Implementation & Maintenance Requirements – Applicants must provide assurances that post-construction stormwater BMP's will be constructed and permanently maintained throughout the use of the developed site.

Step 1 of this process has been completed as part of this report. The "Post-Construction Applicability Checklist" is included as Attachment D. Based on this checklist, the proposed project would be categorized as a Standard Project and therefore subject to preparation of a SRMP in accordance with Chapters 3 and 4 of the Post-Construction Management Requirements.



Post-development runoff volume shall not exceed pre-development runoff volume for the 2-year, 24-hour storm event in accordance with the Guidelines. Typical Site Design BMPs such as construction of walkways and patios with permeable surfaces like unit pavers and granular materials, minimizing directly connected impervious areas, and conservation of natural areas may mitigate the post-development runoff volume.

Metering devices and detention basins for sites such as this do not typically meet the "Maximum Extent Practicable" intent of California Code due to slight slopes and lack of connection to an existing storm drain system. Therefore, we recommend the inclusion of Site Design BMP measures as part of the project so that the intent of the code is met.

Post-Construction Best Management Practices for Pollution Prevention

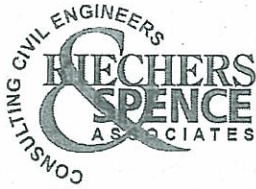
The Guidelines also established requirements for new development to implement stormwater quality measures and BMP's to prevent pollutants from entering storm drain or stormwater conveyance systems. Standard projects are not required to complete "Appendix F" of the "Napa County Post-Construction Runoff Management Requirements" to identify specific structural BMP's, however, several of these structural BMP's could be implemented into the landscape plan early in the design phase.

This project proposes the following potential source pollutant areas that are identified in the Guidelines:

- Parking Areas
- Roadways and Driveways
- Landscaping
- Roof, Gutters, and Downspouts
- Processing Areas

Although this is not a Priority Project, we recommend the incorporation of the following treatment control BMP's that will mitigate potential pollutant sources:

1. Parking Areas to drain to landscaping and/or bioswales prior to stormwater discharge from site;
2. Roadways to be designed to Napa County Road and Street Standards, with stormwater allowed to drain to landscaping prior to discharge from site;
3. Landscaping to minimize the use of fertilizers and pesticides and incorporation of pest-resistant plants;
4. Roofs, gutters and downspouts to drain directly to pervious surfaces or incorporation of rainwater collections systems for potential groundwater recharge and subsequent reduction in stormwater discharge;
5. Processing areas to include berms and adjacent biofilter strips.



These measures meet selected criteria of the Guidelines while taking into account the suitability of the site and soils to those particular applications.

CONCLUSION

This Technical Memorandum has been prepared to address the proposed project's compliance with Federal, State, and County code with respect to stormwater runoff and potential pollutants.

Pollution Prevention from Proposed Construction Activities is addressed in Napa County with the requirement to prepare a SWPPP or SQMP depending on project size. Under this code, the project would be required to prepare a SWPPP as part of its application for a building or grading permit.

Napa County Guidelines adopted on June 3, 2008 require new projects to address stormwater peak flow and treatment requirements. Attenuation of peak stormwater discharge due to increased impervious area for this site can be accomplished with the incorporation of site design features that minimize impervious areas. Due to this site's physical constraints, detention basins and/or ponds present more of a potential for vector habitat than the potential to reduce peak flows, and therefore do not meet the "Maximum Extent Practicable" intent of the code. We recommend use of pervious pavers or pervious surfaces in non-traffic areas and minimizing directly connected impervious areas as part of this project (e.g. roof drains to landscaping or vineyards).

Treatment control measures such as bioswales, biofilter strips and appropriate landscaping are simple design features that can be incorporated into early stages of the project to address the Guidelines' treatment requirements. We recommend these BMP's be incorporated as part of the project to mitigate the potential for pollutant runoff.

In summary, the SWPPP, stormwater attenuation, and treatment measures for this project can be accomplished as part of the design level effort required for a building permit and will address all Napa County requirements to protect the Napa River and its tributaries from the effects of construction activities and post construction storm water runoff.

ATTACHMENT A
APPENDIX A – APPLICABILITY CHECKLIST

NAPA COUNTY CONSTRUCTION SITE RUNOFF CONTROL REQUIREMENTS

APPENDIX A – PROJECT APPLICABILITY CHECKLIST

Construction Site Runoff Control Applicability Checklist		County of Napa Department of Public Works 1195 Third Street, Suite 201 Napa, CA 94559 (707) 253-4351 www.co.napa.ca.us/publicworks
Project Address: <i>3440 HIGHWAY 128, CALISTOGA</i>	Assessor Parcel Number(s): <i>017-160-002</i>	Project Number: (for County use Only)
INSTRUCTIONS <p>Structural projects that require a building and/or grading permit must complete the following checklist to determine if the project is subject to Napa County's Construction Site Runoff Control Requirements. This form must be completed and submitted with your permit application(s). Definitions are provided in the Napa County Construction Site Runoff Control 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.</p>		
DETERMINING PROJECT APPLICABILITY TO THE CONSTRUCTION SITE RUNOFF CONTROL REQUIREMENTS <ul style="list-style-type: none"> ✓ If the answer to question 1 of Part A is "Yes" your project is subject to Napa County's Construction Site Runoff Control requirements and must prepare a Stormwater Pollution Prevention Plan (SWPPP). The applicant must also comply with the SWRCB's NPDES General Permit for Stormwater Associated with Construction Activity and must provide a copy of the Notice of Intent (NOI) and Waste Discharge Identification (WDID). ✓ If the answer to question 1 of Part A is "No", but the answer to any of the remaining questions is "Yes" your project is subject to Napa County's Construction Site Runoff Control requirements and must prepare a Stormwater Quality Management Plan (SQMP). ✓ If every question to Part A is answered "No" your project is exempt from Napa County's Construction Site Runoff Control Requirements, but must comply will all construction site runoff control standard conditions attached to any building or grading permit (see Appendix D of the Napa County Construction Site Runoff Control Requirements). ✓ If any of the answers to the questions in Part A is "Yes", complete the construction site prioritization in Part B below. 		

OVER

NAPA COUNTY CONSTRUCTION SITE RUNOFF CONTROL REQUIREMENTS

APPENDIX A – PROJECT APPLICABILITY CHECKLIST

Part A: Determine Construction Phase Stormwater Requirements

Would the project meet any of these criteria during construction?

1. Propose any soil disturbance of one acre or more? ☒ Yes ☐ No
2. Does the project propose any soil disturbance greater than 10,000 square feet?..... ☒ Yes ☐ No
3. Does the project propose grading, earth moving, or soil disturbance on slopes 15% or greater?..... Yes ☒ No
4. Does the project propose earthmoving of 50 cubic yards or more?..... ☒ Yes ☐ No
5. Does the project propose soil disturbance within 50 feet of a stream, ditch, swale, curb and gutter, catch basin or storm drain that concentrates and transports stormwater runoff to a "receiving water" (i.e., Waters of the State defined as all waters, including but not limited to, natural streams, creeks, rivers, reservoirs, lakes, ponds, water in vernal pools, lagoons, estuaries, bays, the Pacific Ocean, and ground water)? Yes ☒ No

Part B: Determine Construction Site Priority

Projects that are subject to the Construction Site Runoff Control Requirements must be designated with a priority of high, medium, or low. This prioritization must be completed with this form, noted on the plans, and included in the SWPPP or SQMP. Indicate the project's priority in one of the checked boxes using the criteria below. The County reserves the right to adjust the priority of projects both before and during construction.

Note: The construction priority does NOT change construction Best Management Practice (BMP) requirements that apply to projects. The construction priority does affect the frequency of inspections that will be conducted by County staff and associated fees.

Select the highest priority category applicable to the project.

☒ High Priority

☒ a) Projects with soil disturbance of one acre or greater.

b) Projects on slopes of 30% or greater.

c) Projects proposing new storm drains.

☐ Medium Priority

a) Projects on slopes from 5% to 29%.

b) Projects with soil disturbance between 10,000 sq. ft and one acre.

c) Projects with earthmoving of 50 cubic yards or more.

☐ Low Priority

a) Projects with soil disturbance within 50 feet stream, ditch, swale, curb and gutter, catch basin or storm drain that concentrates and transports stormwater runoff to a "receiving water".

Name of Owner or Agent (Please Print):

CARL A. BUTTS.

Title:

ASSOCIATE PRINCIPAL

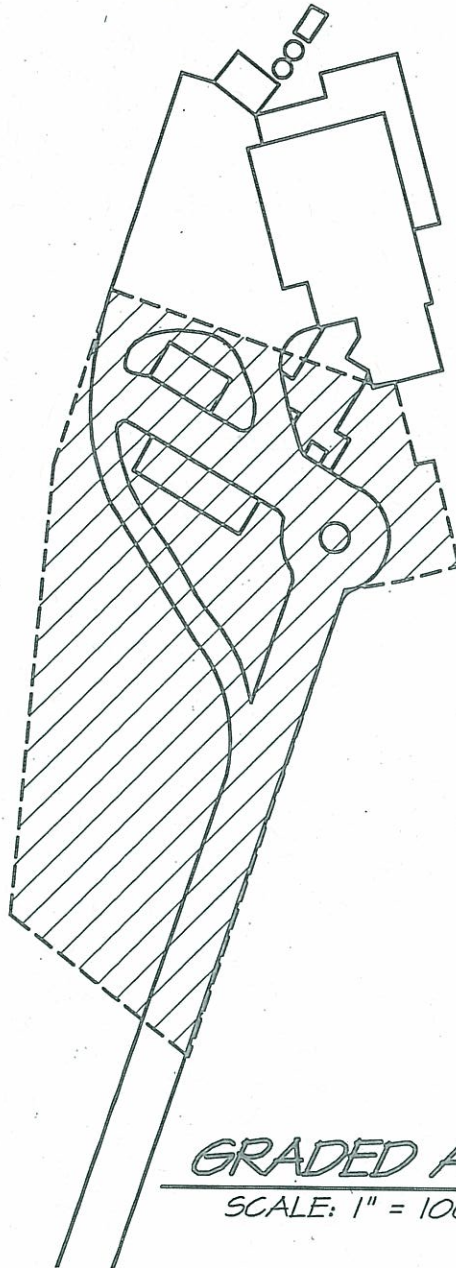
Signature of Owner or Agent:

Carl A. Butts

Date:

OCTOBER 6, 2008

BENNETT LANE WINERY
GRADING AREA
NAPA COUNTY CALIFORNIA
SCALE: 1" = 100'



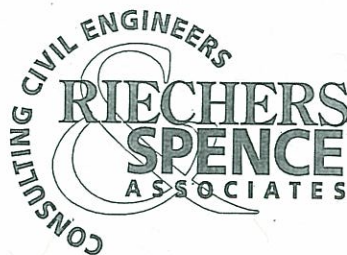
GRADED AREA

SCALE: 1" = 100'

LEGEND



AREA OF DISTURBANCE 52,957 SQ FT



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OCT 06, 2008

4108060.0 IMPERV-SURF.DWG 1 OF 1

ATTACHMENT B
SUPPORTING HYDROLOGY INFORMATION

Soil Map—Napa County, California



Natural Resources
Conservation Service

Web Soil Survey 2.0
National Cooperative Soil Survey

Appendix A

Hydrologic Soil Groups

Soils are classified into hydrologic soil groups (HSG's) to indicate the minimum rate of infiltration obtained for bare soil after prolonged wetting. The HSG's, which are A, B, C, and D, are one element used in determining runoff curve numbers (see chapter 2). For the convenience of TR-55 users, exhibit A-1 lists the HSG classification of United States soils.

The infiltration rate is the rate at which water enters the soil at the soil surface. It is controlled by surface conditions. HSG also indicates the transmission rate—the rate at which the water moves within the soil. This rate is controlled by the soil profile. Approximate numerical ranges for transmission rates shown in the HSG definitions were first published by Musgrave (USDA 1955). The four groups are defined by SCS soil scientists as follows:

Group Asoils have low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sand or gravel and have a high rate of water transmission (greater than 0.30 in/hr).

Group Bsoils have moderate infiltration rates when thoroughly wetted and consist chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission (0.15-0.30 in/hr).

Group Csoils have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine texture. These soils have a low rate of water transmission (0.05-0.15 in/hr).

Group Dsoils have high runoff potential. They have very low infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very low rate of water transmission (0-0.05 in/hr).

In exhibit A-1, some of the listed soils have an added modifier; for example, "Abrazo, gravelly." This refers to a gravelly phase of the Abrazo series that is found in SCS soil map legends.

Disturbed soil profiles

As a result of urbanization, the soil profile may be considerably altered and the listed group classification may no longer apply. In these circumstances, use the following to determine HSG according to the texture of the new surface soil, provided that significant compaction has not occurred (Brakensiek and Rawls 1983).

HSG	Soil textures
A	Sand, loamy sand, or sandy loam
B	Silt loam or loam
C	Sandy clay loam
D	Clay loam, silty clay loam, sandy clay, silty clay, or clay

Drainage and group D soils

Some soils in the list are in group D because of a high water table that creates a drainage problem. Once these soils are effectively drained, they are placed in a different group. For example, Ackerman soil is classified as A/D. This indicates that the drained Ackerman soil is in group A and the undrained soil is in group D.

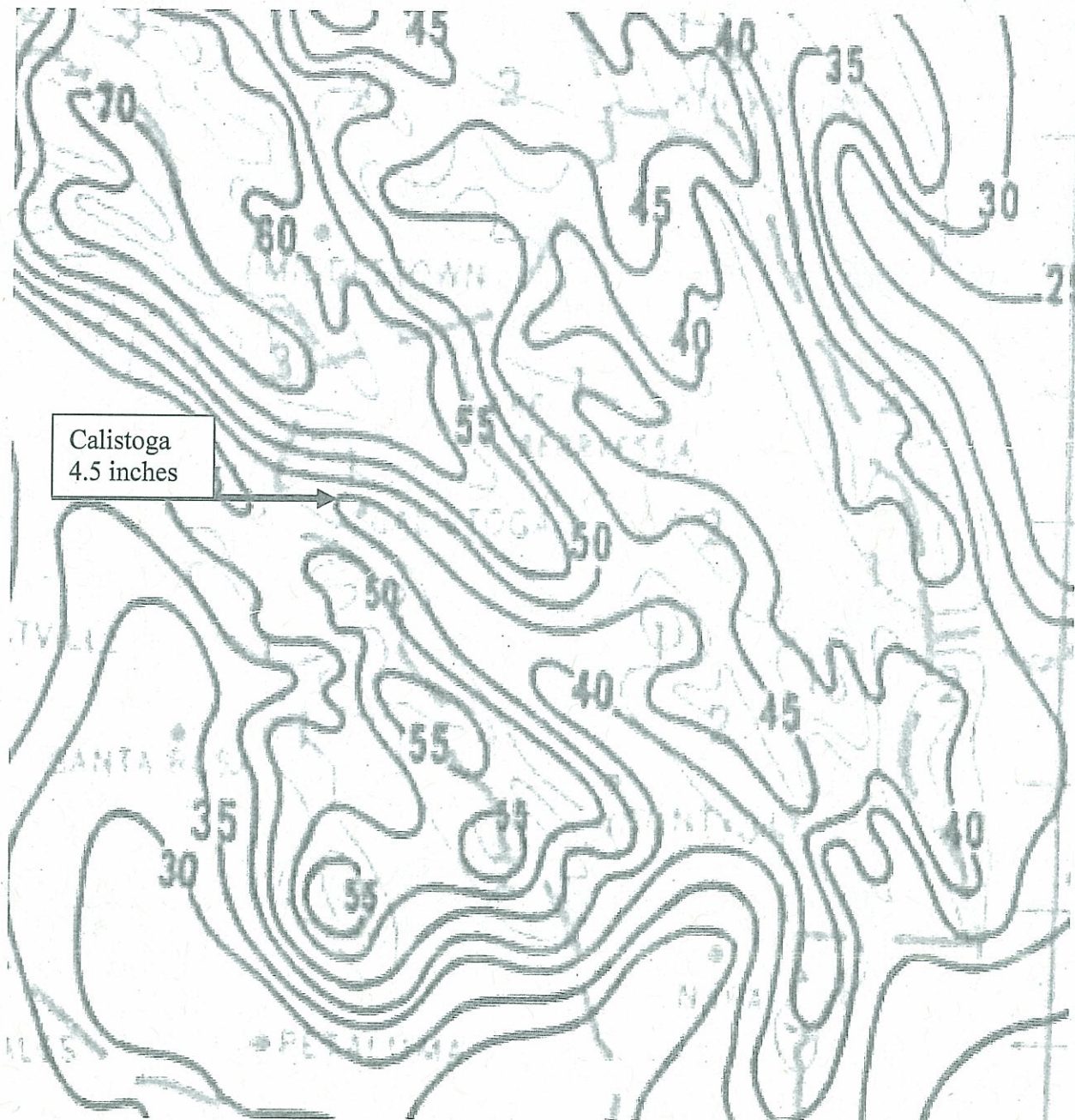
Table 2-2a Runoff curve numbers for urban areas ^{1/}

Cover description		Curve numbers for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area ^{2/}	A	B	C	D
<i>Fully developed urban areas (vegetation established)</i>					
Open space (lawns, parks, golf courses, cemeteries, etc.) ^{3/} :					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) ^{4/}		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
<i>Developing urban areas</i>					
Newly graded areas (pervious areas only, no vegetation) ^{5/}					
		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

¹ Average runoff condition, and $I_a = 0.2S$.² The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.³ CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.⁴ Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.⁵ Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Excerpt of Figure 26 – Isopluvials of 2-yr 24-hr precipitation for northern half of California in tenths of an inch.

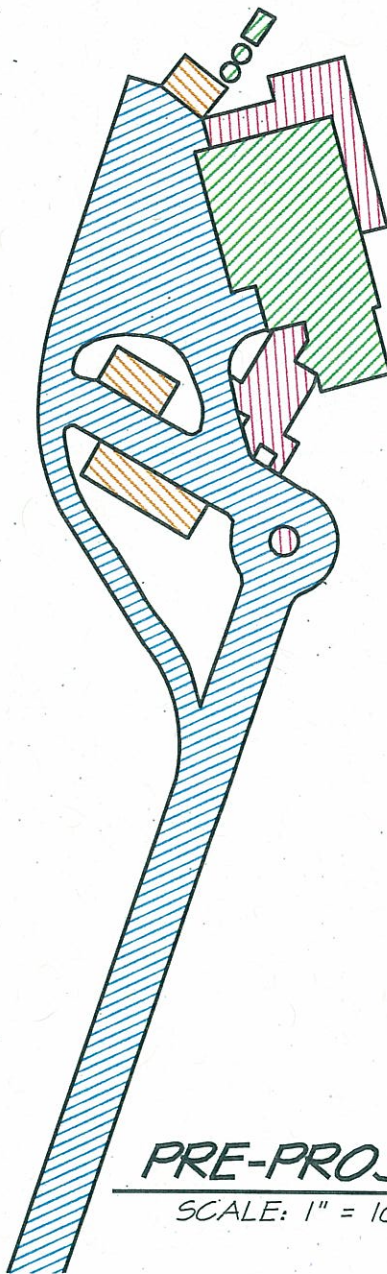
NOAA ATLAS 2, Volume XI



BENNETT LANE WINERY IMPERVIOUS SURFACES

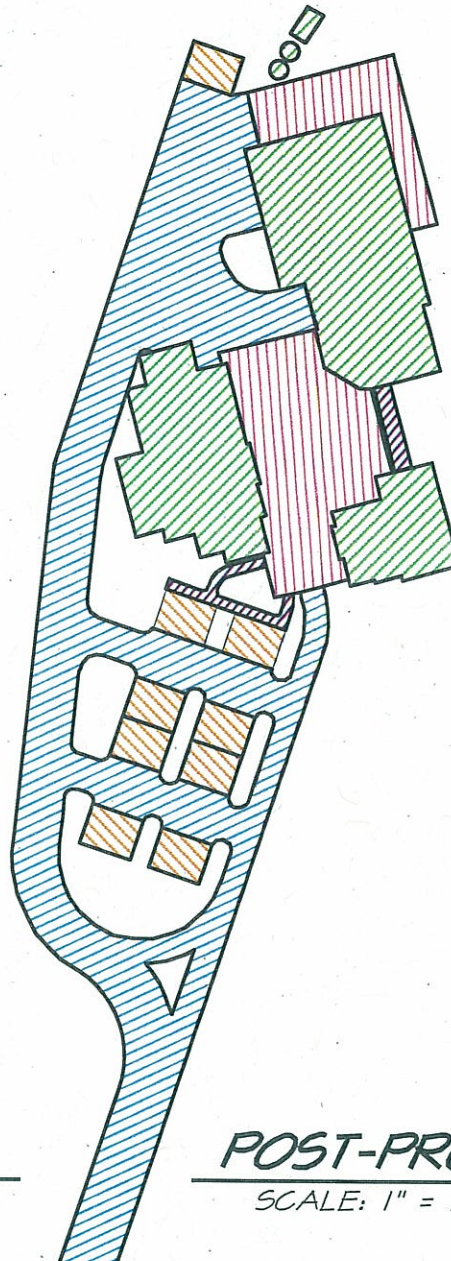
NAPA COUNTY CALIFORNIA

SCALE: 1" = 100'



PRE-PROJECT





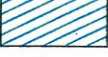
SCALE: 1" = 100'



POST-PROJECT

SCALE: 1" = 100'

LEGEND

	PRE-PROJECT AREA	POST-PROJECT AREA
 BUILDING	0.20 AC	0.42 AC
 PATIO	0.11 AC	0.24 AC
 SIDEWALKS	N/A	0.01 AC
 PARKING	0.05 AC	0.11 AC
 DRIVEWAYS	1.29 AC	1.33 AC
TOTAL AREA	1.65 AC	2.11 AC



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	Square Feet	Acres	Sq Miles
Entire Parcel	435,600	10.00	0.01563
Existing Impervious			
Parking Lots	2,277	0.05	
Patio	4,802	0.11	
Sidewalks	0	0.00	
Driveways	56,019	1.29	
Buildings	8,887	0.20	
Total (E) Impervious	71,985	1.65	0.00258
Existing Pervious	363,615	8.35	0.01304

	Square Feet	Acres	Sq Miles
Entire Parcel	437,575	10.05	0.01570
Proposed Impervious			
Parking Lots	4,864	0.11	
Patio	10,492	0.24	
Sidewalks	624	0.01	
Driveways	57,822	1.33	
Buildings	18,266	0.42	
Total (P) Impervious	92,068	2.11	0.00330
Proposed Pervious	345,507	7.93	0.01239

Worksheet: Runoff Curve Number

Project	Bennett Lane Winery	By	JRG	Date	9/29/2008
Location	Napa County, California	Checked		Date	
Subshed name	Existing Condition	Check one:	<input checked="" type="checkbox"/> Present	<input type="checkbox"/> Developed	

RUNOFF CURVE NUMBER

[illegible]

(1) Use only one CN source per line

TOTAL:

10.00

829.70

$$\text{CN (weighted)} = \frac{\text{total product} \cdot}{\text{total area}} = \frac{829.70}{10.00} = \underline{82.97} \quad ; \text{ USE CN}$$

83

Worksheet: Runoff Curve Number

Project	Bennet Lane Winery	By	JRG	Date	9/29/2008
Location	Napa County, California	Checked		Date	
Subshed name	Proposed Condition	Check one:	<input type="checkbox"/> Present <input checked="" type="checkbox"/> Developed		

RUNOFF CURVE NUMBER

[illegible]

(1) Use only one CN source per line

TOTAL:

10.04

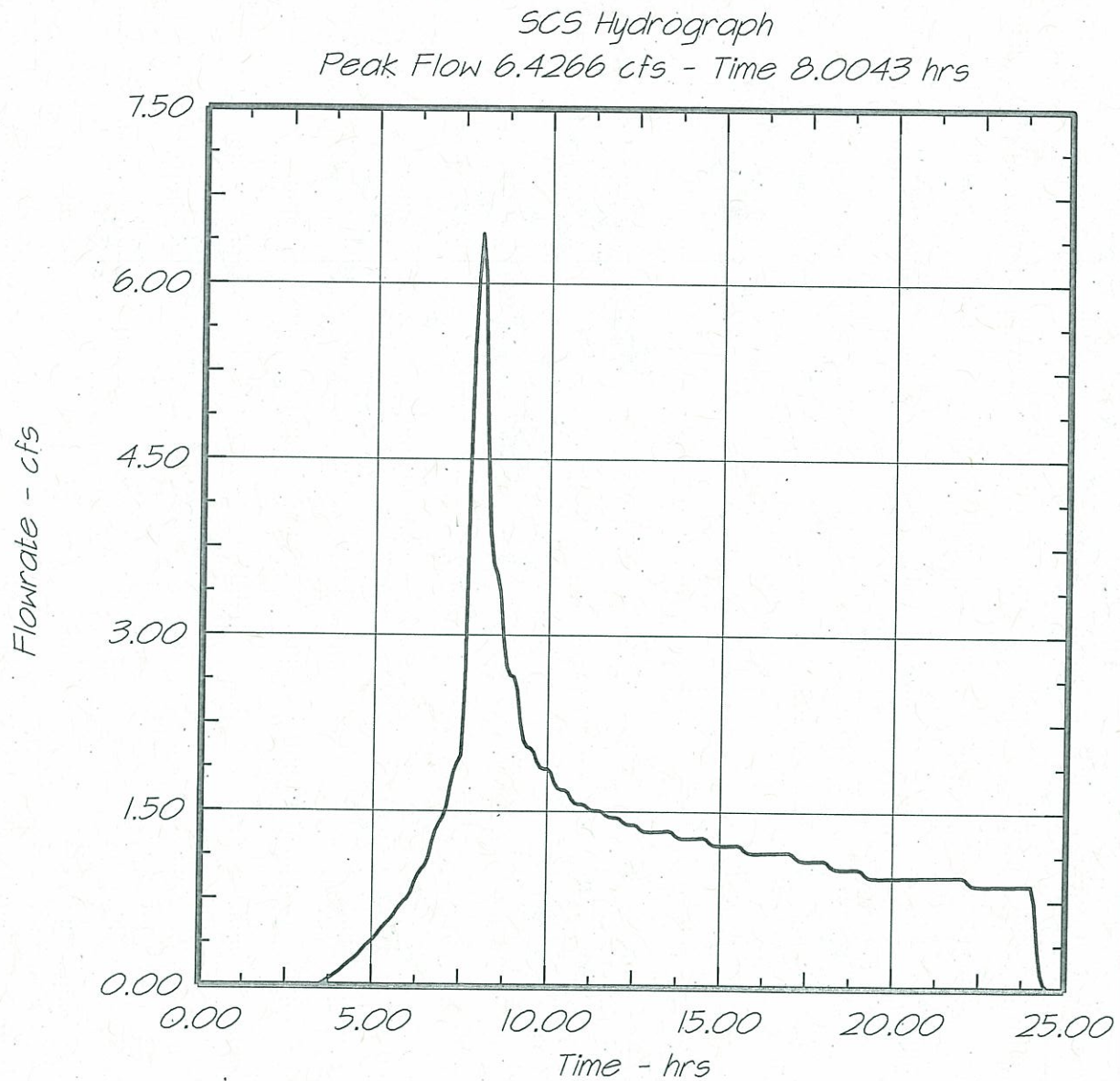
841.18

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{841.18}{10.04} = \frac{83.78}{1} ; \text{ USE CN}$$

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ATTACHMENT C
HYDROLOGY CALCULATIONS

BENNETT LANE WINERY
(E) 2-YR PEAK STORM RUNOFF
CALISTOGA CALIFORNIA



CONSULTING CIVIL ENGINEERS
**RIECHERS
& SPENCE**
ASSOCIATES

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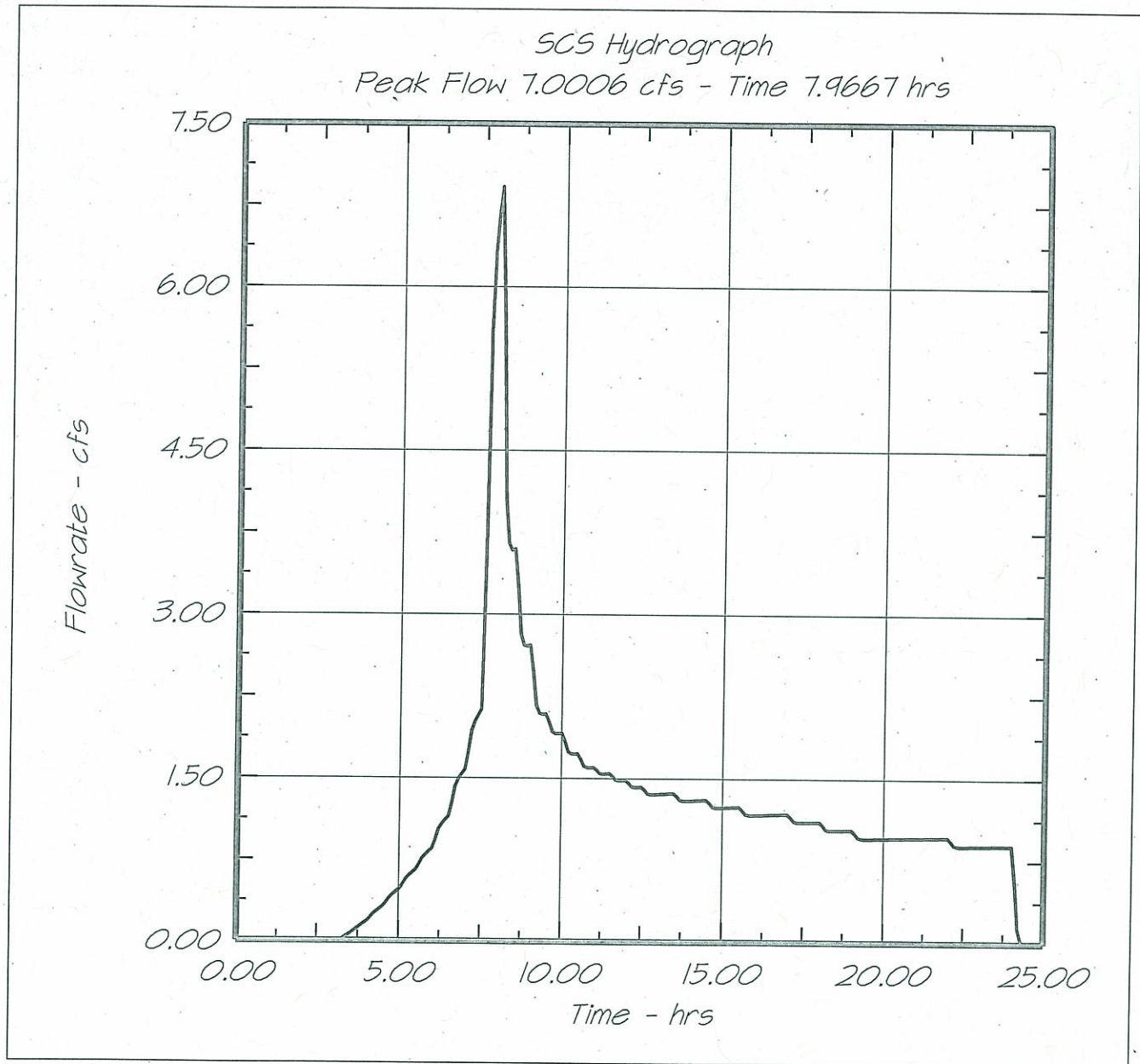
6 OCT 08

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1

BENNETT LANE WINERY
(P) 2-YR PEAK STORM RUNOFF
CALISTOGA CALIFORNIA



CONSULTING CIVIL ENGINEERS
**RIECHERS
& SPENCE**
ASSOCIATES

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TR-20 Output 2-yr Existing.txt

SCS Method

Given Input Data:

Description	2-Yr Rainfall Event (Existing Condition)
Drainage area	0.0156 mi ²
Runoff curve number, CN	83
Time of concentration, Tc	0.2500 hrs
Dimensionless Hydrograph	scsdim
Rainfall	4.5000 in
Distribution Curve	tr20t3: Type 1A, 24 hrs
Duration	24.0000 hrs
Antecedent Moisture Condition ..	Type II
Time Increment, Tp	0.1000 hrs

Computed Results:

Peak discharge, qp	6.4266 cfs
Peak Time, Tp	8.0043 hrs
Peak rate factor	484
Constant, K	0.7500
Runoff Volume	2.7242 in
.....	27.4265 cfs-hrs
.....	2.2665 acft

TR-20 Output 2-yr Proposed.txt

SCS Method

Given Input Data:

Description	2-Yr Rainfall Event (Proposed Condition)
Drainage area	0.0156 mi ²
Runoff curve number, CN	84
Time of concentration, Tc	0.1670 hrs
Dimensionless Hydrograph	scsdim
Rainfall	4.5000 in
Distribution Curve	tr20t3: Type 1A, 24 hrs
Duration	24.0000 hrs
Antecedent Moisture Condition ..	Type II
Time Increment, Tp	0.1000 hrs

Computed Results:


Peak discharge, qp	7.0006 cfs
Peak Time, Tp	7.9667 hrs
Peak rate factor	484
Constant, K	0.7500
Runoff Volume	2.8141 in
.....	28.3313 cfs-hrs
.....	2.3413 acft

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
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Project Address: 3440 HIGHWAY 128	Assessor Parcel Number(s): 017-160-002	Project Number: <small>(for County use Only)</small>
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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 <input checked="" type="radio"/> No
2. Commercial development greater than 100,000 square feet.....	Yes <input checked="" type="radio"/> No
3. Automotive repair shop.....	Yes <input checked="" type="radio"/> No
4. Retail Gasoline Outlet.....	Yes <input checked="" type="radio"/> No
5. Restaurant.....	Yes <input checked="" type="radio"/> No
6. Parking lots with greater than 25 spaces or greater than 5,000 square feet.....	Yes <input checked="" type="radio"/> 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 <input checked="" type="radio"/> No
2. New or redeveloped impervious surfaces 10,000 square feet or greater, excluding roads?.....	Yes <input checked="" type="radio"/> No
3. Hillside residential greater than 30% slope.....	Yes <input checked="" type="radio"/> No
4. Roadway and driveway construction or reconstruction which requires a Grading Permit.....	Yes <input checked="" type="radio"/> No
5. Installation of new storm drains or alteration to existing storm drains?.....	Yes <input checked="" type="radio"/> No
6. Liquid or solid material loading and/or unloading areas?.....	Yes <input checked="" type="radio"/> No
7. Vehicle and/or equipment fueling, washing, or maintenance areas, excluding residential uses?.....	Yes <input checked="" type="radio"/> No
8. Commercial or industrial waste handling or storage, excluding typical office or household waste?.....	Yes <input checked="" type="radio"/> 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) <i>(AKES DRAW)</i>			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	<i>8,887 (0.20)</i>	<i>18,266 (0.42 ac)</i>		
Patio, Impervious Decking, Pavers and Impervious Liners	<i>4,802 (0.11)</i>	<i>10,492 (0.24)</i>		
Sidewalks and paths	<i>0</i>	<i>624 (0.01)</i>		
Parking Lots	<i>2,277 (0.05)</i>	<i>4,864 (0.11)</i>		
Roadways and Driveways,	<i>56,019 (1.29)</i>	<i>57,822 (1.33)</i>		
Off-site Impervious Improvements				
Total Area of Impervious Surface (Excluding Roadways and Driveways)	<i>15,966 (0.37)</i>	<i>34,246 (0.79)</i>		

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.

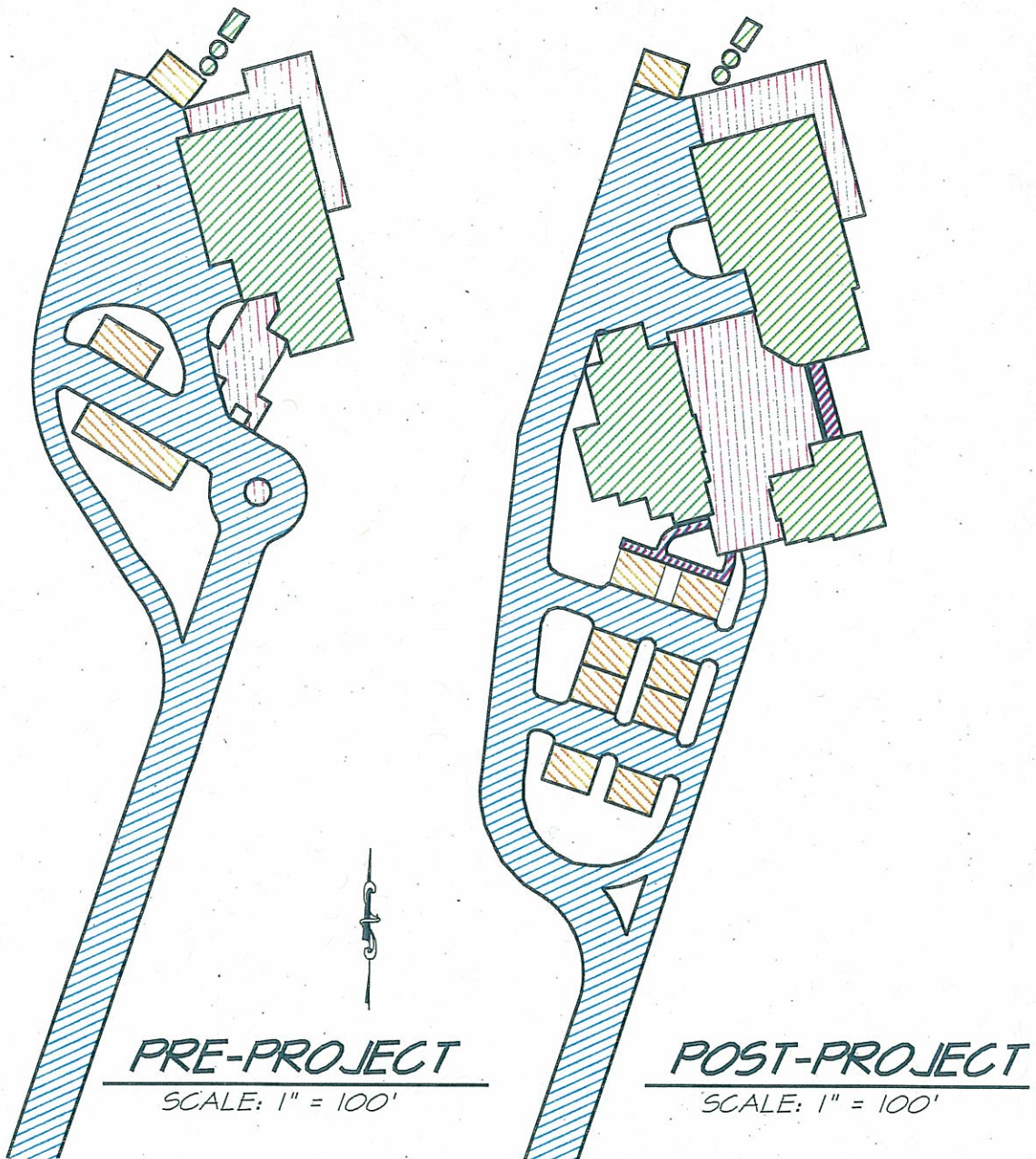
Name of Owner or Agent (Please Print):	Title:
Signature of Owner or Agent:	Date:

BENNETT LANE WINERY



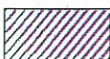


IMPERVIOUS SURFACES

NAPA COUNTY, CALIFORNIA

SCALE: 1" = 100'



LEGEND

	PRE-PROJECT AREA	POST-PROJECT AREA
 BUILDING	0.20 AC	0.42 AC
 PATIO	0.11 AC	0.24 AC
 SIDEWALKS	N/A	0.01 AC
 PARKING	0.05 AC	0.11 AC
 DRIVEWAYS	1.29 AC	1.33 AC
TOTAL AREA	1.65 AC	2.11 AC



1541 Third Street
Napa, Calif. 94559
v 707.252.3301
f 707.252.4966

SEPT 29, 2008

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