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NAPA CO. CONSERVATION DEVELOPMENT & PLANNING DEPT.

FILE # P10-00358

A Tradition of Stewardship
A Commitment to Service

NAPA COUNTY
CONSERVATION, DEVELOPMENT & PLANNING DEPARTMENT
1195 Third Street, Suite 210, Napa, California, 94559 • (707) 253-4417

APPLICATION FORM

FOR OFFICE USE ONLY

ZONING DISTRICT: AP

Date Submitted: 10/22/10

TYPE OF APPLICATION: Use Permit MOD

Date Published: _____

REQUEST: increase marketing, upgrade septic system, additional parking, modify condition of approval regarding lighting

Date Complete: _____

TO BE COMPLETED BY APPLICANT
(Please type or print legibly)

PROJECT NAME: Quintessa Winery Modification. This is an application for a development permit

Assessor's Parcel #: 030-060-059 -061 Existing Parcel Size: 178 +/- ac.

Site Address/Location: 1601 Silverado Trail Rutherford, California 94573
No. Street City State Zip

Property Owner's Name: Clarevale

Mailing Address: 1040 Main Street, Suite 204 Napa, California 9459
No. Street City State Zip

Telephone #: (707) 967 - 1601 Fax #: (707) 286 - 2727 E-Mail: _____

Applicant's Name: Jim Harris

Mailing Address: P.O. Box 505 Rutherford, California 94573
No. Street City State Zip

Telephone #: (707) 967 - 4000 Fax #: (415) 954 - 4480 E-Mail: _____

Status of Applicant's Interest in Property: President

Representative Name: Same as above

Mailing Address: Same as above
No. Street City State Zip

Telephone # (___) _____ Fax #: (___) _____ E-Mail: _____

I certify that all the information contained in this application, including but not limited to the information sheet, water supply/waste disposal information sheet, site plan, floor plan, building elevations, water supply/waste disposal system site plan and toxic materials list, 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 County Planning Division for preparation of reports related to this application, including the right of access to the property involved.

James Harris 10/14/10
Signature of Property Owner Date

James Harris
Print Name

_____ _____
Signature of Applicant Date

_____
Print Name

TO BE COMPLETED BY CONSERVATION, DEVELOPMENT AND PLANNING DEPARTMENT

*Application Fee Deposit: $ 8000.00 Receipt No. _____ Received by _____ Date: 10/22/10

_____

*Total Fees will be based on actual time and materials

INFORMATION SHEET

I. USE

A. Description of Proposed Use (attached detailed description as necessary) (including where appropriate product/service provided): increase the number of daily and weekly visitors; add three marketing events; increase the number of on-site parking spaces; and upgrade existing wastewater treatment. Modify previous condition relating to nighttime lighting. No new construction or alteration to the existing winery footprint is proposed

B. Project Phases: [X] one [ ] two [ ] more than two (please specify):

C. Estimated Completion Date for Each Phase: Phase 1: 2010 Phase 2:

D. Actual Construction Time Required for Each Phase: X less than 3 months ☐ More than 3 months

E. Related Necessary On- And Off-Site Concurrent or Subsequent Projects: wastewater pre-treatment & disposal system; re-design existing parking areas to accommodate overflow parking for new visitors within previously disturbed and improved areas

F. Additional Licenses/Approval Required:

District: N/A Regional: N/A
State: N/A Federal: N/A

II. BUILDINGS/ROADS/DRIVEWAY/LEACH FIELD, ETC.

A. Floor Area/Impervious area of Project (in square ft): No change +/-
Proposed total floor area on site: No change
Total development area (building, impervious, leach field, driveway, etc.) No change
New construction: N/A

existing structures or portions thereof to be utilized: No change

existing structures or portions thereof to be moved: N/A

B. Floor Area devoted to each separate use (in square ft):

living: 0 storage/warehouse: No change offices: No change
sales: No change caves: No change other: No change
septic/leach field: roads/driveways: No change

C. Maximum Building Height: existing structures: 35 feet new construction: N/A

D. Type of New Construction (e.g., wood-frame): None

E. Height of Crane necessary for construction of new buildings (*airport environs*): N/A

F. Type of Exterior Night Lighting Proposed: low-level security and landscape lighting

G. Viewshed Ordinance Applicable (See County Code Section 18.106): ☐Yes X No

H. Fire Resistivity (check one; If not checked, Fire Department will assume Type V – non rated):
☐ Type I FR ☐ Type II 1 Hr ☐ Type II N (non-rated) ☐ Type III 1 Hr ☐ Type III N
☐ Type IV H.T. (Heavy Timber) ☐ Type V 1 Hr. ☐ Type V (non-rated)
(Reference Table 6 A of the 2001 California Building Code)

III. PARKING

	Existing	Proposed
A. Total On-Site Parking Spaces:	18	24
B. Customer Parking Spaces:	4	10
C. Employee Parking Spaces:	14	14
D. Loading Areas:	1	1

IV.	TYPICAL OPERATION	Existing	Proposed
A.	Days of Operation:	7	No change
B.	Expected Hours of Operation:	8:00—5:00	8:00—5:30
C.	Anticipated Number of Shifts:	1	No change
D.	Expected Number of Full-Time Employees/Shift:	10	No change
E.	Expected Number of Part-Time Employees/Shift:	4	No change
F.	Maximum Number of Visitors • busiest day:	10	100
	• average/week:	25	500 (max)
G.	Anticipated Number of Deliveries/Pickups • busiest day:	7	No change
	• average/week:	10	No change

V. SUPPLEMENTAL INFORMATION FOR SELECTED USES

A. Commercial Meeting Facilities
Food Serving Facilities

• restaurant/deli seating capacity:	N/A
• bar seating capacity:	N/A
• public meeting room seating capacity:	N/A
• assembly capacity:	N/A

B. Residential Care Facilities (6 or more residents)
Day Care Centers

	Existing	Proposed
• type of care:	N/A	N/A
• total number of guests/children:	N/A	N/A
• total number of bedrooms:	N/A	N/A
• distance to nearest existing/approved facility/center:	N/A	N/A

WATER SUPPLY/WASTE DISPOSAL INFORMATION SHEET

I. WATER SUPPLY	Domestic	Emergency
A. Proposed source of Water (eg., spring, well, mutual water company, city, district, etc.):	Well (ex.)	Tank
B. Name of Proposed Water Supplier (if water company, city, district): annexation needed?	N/A ☐Yes ☐No	N/A ☐Yes ☐No
C. Current Water Use (in gallons/day): Current water source:	4800 well	0 Tank
D. Anticipated Future Water Demand (in gallons/day):	5,200	0
E. Water Availability (in gallons/minute):	35	1,000
F. Capacity of Water Storage System (gallons):	10,000	10,000
G. Nature of Storage Facility (eg., tank, reservoir, swimming pool, etc.):	Tank	Tank
F. Completed Phase I Analysis Sheet (Attached):		

II. LIQUID WASTE	Domestic (sewage)	Other (please specify)
A. Disposal Method (e.g., on-site septic system on-site ponds, community system, district, etc.):	on-site septic	ww pond
B. Name of Disposal Agency (if sewage district, city, community system): annexation needed?	N/A ☐Yes ☐No	N/A ☐Yes ☐No
C. Current Waste Flows (peak flow in gallons/day):	500	4,500
D. Anticipated Future Waste Flows (peak flows in gallons/day):	710	No change
E. Future Waste Disposal Capacity (in gallons/day):	710	No change

III. SOLID WASTE DISPOSAL		
A. Operational Wastes (on-site, landfill, garbage co., etc.):	Garbage Co.	
B. Grading Spoils (on-site, landfill, construction, etc.):	on-site	

IV. HAZARDOUS/TOXIC MATERIALS (Please fill out attached hazardous materials information sheet, attached)

A. Disposal Method (on-site, landfill, garbage co., waste hauler, etc.):	Garbage Co.	
B. Name of Disposal Agency (if landfill, garbage co., private hauler, etc.):	UVD	

USE PERMIT APPLICATION
SUPPLEMENTAL INFORMATION SHEET
FOR WINERY USES

1. **Operations.** (In the blank in front of each operation, place an "E" for Existing, a "P" for Proposed, an "X" for Expanding, or an "N" for None.

a. E crushing
b. E fermentation
c. E barrel ageing
d. E bottling
e. E case goods storage
f. E underground waste disposal
g. E above-ground waste disposal
h. E administration offices
i. E laboratories
j. N day care
k. E tours/tastings:
   N public drop-in
   E public by appointment
   E wine trade only
l. E retail wine sales
m. N other retail sales
n. N public display of art or wine-related items
o. N picnic areas
p. E food preparation
q. E custom production

2. **Marketing Activities.** (Describe the nature of any marketing or educational events not listed above including the type of events, whether public or private, frequency of events, average attendance, etc. Differentiate between existing and proposed activities. Attach additional sheets if necessary): In addition to conducting tours and tastings by appointment as described in the use permit application, Quintessa is seeking to expand the number of markeitng events authorized by its current use permit (#99538-UP). All marketing evnets will conform to the 2010 defintion of marketing, as follows:

Approved Marketing Program (10 approved events)

6 events for up to 20 persons per event

2 events for up to 50 persons per event

2 outdoor events for up to 100 persons per event

Propsoed Changes to Approved Marketing (total of 13 following permit approval)

Add 3 release events for 50 persons per event

12345\555496.1

3. **Food Service.** Describe the nature of any food service including type of food, whether public or private, whether profit or nonprofit; frequency of service, whether prepared on site or not, kitchen equipment, eating facilities, etc. Differentiate between existing and proposed food service. Attach additional sheets if necessary): Food for above events will be prepared off site and catered

(OVER)

4. **Production Capacity**
   a. existing capacity: 180,000 date authorized: 2000
   b. current maximum actual production (year): 86,000 (2009)

5. **Grape Origin.** (Fill out a "Initial Statement of Grape source" form if establishing a new winery or expanding an existing winery development area.)

6. **Total Coverage.** (as defined below)
   a. square feet: No change
   b. percent of total parcel: No change

7. **Production Facility Coverage.** (as defined below)
   a. square feet: No change

8. **Accessory Structure Coverage.** (as defined below)
   a. square feet: No change
   b. percent of production facility coverage: No change

Marketing Definition (paraphrased from County Code)

1. **Marketing of Wine** - Any activity conducted at the winery shall be limited to members of the wine trade, persons who have pre-established business or personal relationships with the winery or its owners, or members of a particular group for which the activity is being conducted on a prearranged basis. Marketing of wine is limited to activities for the education and development of the persons or groups listed above with respect to wine which can be sold at the winery on a retail basis and may include food service without charge except to the extent of cost recovery when provided in association with such education and development, but shall not include cultural and social events unrelated to such education and development.

Coverage Definitions (paraphrased from County Code)

1. **Total Coverage** - The aggregate paved or impervious ground surface areas of the production facility, storage areas (except caves), offices, laboratories, kitchens, tasting rooms, paved areas and access roads to public or private roads or rights-of-way and above-ground sewage disposal systems.

2. **Production Facility Coverage** - The aggregate paved or impervious ground surface areas of crushing, fermenting, bottling, bulk and bottle storage, shipping, receiving, laboratory, equipment storage and maintenance facilities; not including wastewater treatment or disposal areas which cannot be used for agricultural purposes.

3. **Accessory Structure Coverage** - The square footage of structures used for accessory uses related to a winery (i.e., the Total Coverage less Production Facility Coverage, paved areas, and access roads).

PROJECT DESCRIPTIION
QUINTESSA WINERY
1601 Silverado Trail
Rutherford, California

Quintessa Winery is located on a 17.6 +/- acre parcel in the Rutherford viticultural area. In addition to the iconic estate winery and cave complex designed by Walker Wasner Architects, some 8 acres of land are planted to vineyard. The winery is authorized to produce up to 180,000 gallons of wines annually. The visitation program approved in 2000 allowed a very modest 10 visitors per day, 25 per week and 10 marketing events per year. The current visitation program is very modest when compared to wineries of comparable size and location.

With its wine brand established and the downturn in the economy, Quintessa is motivated to increase its market presence and visibility. Recent changes to the county's definition of marketing suggests that the time is right to pursue an increase in the winery's visitation program.

The applicant is seeking approval to increase daily visitation to 100 persons per day maximum and to increase maximum weekly visitation to 500 persons. An increase in the number of annual marketing events from 10 to 13 is also proposed. Food service would continue to be prepared off-site and catered. The application forms describe the change in Quintessa marketing events in more detail. This visitation level is consistent with wineries of comparable size that are located on the Silverado Trial or other of the county's heavily traveled roads. The applicant is also seeking a change to condition #13 of its original use permit. That condition restricts nighttime lighting to those lights that are motion-sensor controlled. The applicant would like to modify this condition to allow low level, shielded nighttime landscape lighting. These lights would be photosensitive not are not motion-sensor controlled.

Approval of the request will involve no physical change to the winery nor will it require addition or changes to the disturbed areas. The upgraded septic system will be installed in the area where the current system exists. Additional parking will be provided on the existing improved surfaces. The attached site plan depicts the location of the additional parking. Sufficient water is available from the existing well and is within the groundwater thresholds established by the county.

The proposal is consistent with all requirements of the Winery Definition Ordinance, the zoning ordinance and the recent changes to the definition of marketing.

Approval of the use permit modification is requested.

INDEMNIFICATION AGREEMENT

Pursuant to Chapter 1.30 of the Napa County Code, as part of the application for a discretionary land use project approval for the project identified below, Applicant agrees to defend, indemnify, release and hold harmless Napa County, its agents, officers, attorneys, employees, departments, boards and commissions (hereafter collectively "County") from any claim, action or proceeding (hereafter collectively "proceeding") brought against County, the purpose of which is to attack, set aside, void or annul the discretionary project approval of the County, or an action relating to this project required by any such proceeding to be taken to comply with the California Environmental Quality Act by County, or both. This indemnification shall include, but not be limited to damages awarded against the County, if any, and cost of suit, attorneys' fees, and other liabilities and expenses incurred in connection with such proceeding that relate to this discretionary approval or an action related to this project taken to comply with CEQA whether incurred by the Applicant, the County, and/or the parties initiating or bringing such proceeding. Applicant further agrees to indemnify the County for all of County's costs, attorneys' fees, and damages, which the County incurs in enforcing this indemnification agreement.

Applicant further agrees, as a condition of project approval, to defend, indemnify and hold harmless the County for all costs incurred in additional investigation of or study of, or for supplementing, redrafting, revising, or amending any document (such as an EIR, negative declaration, specific plan, or general plan amendment) if made necessary by said proceeding and if the Applicant desires to pursue securing approvals which are conditioned on the approval of such documents.

In the event any such proceeding is brought, County shall promptly notify the Applicant of the proceeding, and County shall cooperate fully in the defense. If County fails to promptly notify the Applicant of the proceeding, or if County fails to cooperate fully in the defense, the Applicant shall not thereafter be responsible to defend, indemnify, or hold harmless the County. The County shall retain the right to participate in the defense of the proceeding if it bears its own attorneys' fees and costs, and defends the action in good faith. The Applicant shall not be required to pay or perform any settlement unless the settlement is approved by the Applicant.

Quintessa
Applicant

Property Owner (if other than Applicant)

10.22.10
Date

Project Identification

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NAPA CO. CONSERVATION
DEVELOPMENT & PLANNING DEPT.

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)*
1601 Silverado Trail, St. Helena, CA	030-060-061	

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	34,400	0	0	0
Patio, Impervious Decking, Pavers and Impervious Liners	2,900	0	0	0
Sidewalks and paths	0	0	0	0
Parking Lots	7,700	0	0	0
Roadways and Driveways,	71,500	0	0	0
Off-site Impervious Improvements	0	0	0	0
Total Area of Impervious Surface (Excluding Roadways and Driveways)	45,000	0	0	0

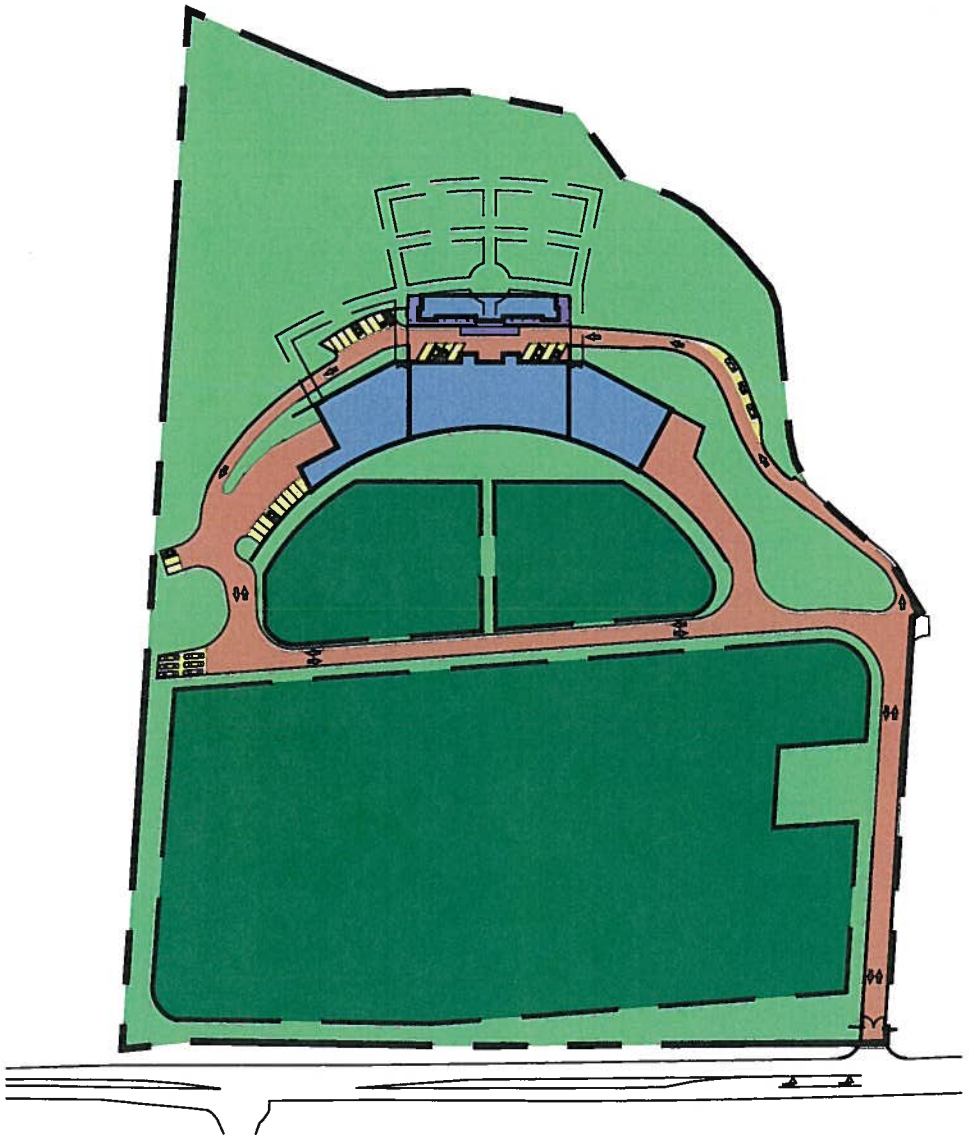
Incorrect information on proposed activities or uses of a project may delay your project application(s) or permit(s).

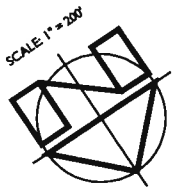
I declare under penalty of perjury, that to the best of my knowledge, the information presented herein is accurate and complete.

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

LAND USE LEGEND:

	NATIVE VEGETATION / LANDSCAPE	305,400 SQ FT
	VINEYARD	347,000 SQ FT
	BUILDING	34,400 SQ FT
	PATIO	2,900 SQ FT
	PARKING	7,700 SQ FT
	DRIVEWAYS	71,500 SQ FT
	TOTAL	768,900 SQ FT (17.7 ± ACRES)





EXISTING LAND USE EXHIBIT

SCALE: 1" = 200'

APPLIED CIVIL ENGINEERING, INCORPORATED
2074 West Lincoln Avenue
Napa, CA 94558
(707)320-4968 (707)320 2395 Fax
www.appliedcivil.com

QUINTESSA
c/o JIM HARRIS
PO BOX 505
RUTHERFORD, CA 94573
NAPA COUNTY APN 030-060-061

QUINTESSA

LAND USE EXHIBIT

EXHIBIT A

JOB NO. 10-106

Napa County Department of Environmental Management
CUPA-Related Business Activities Form

Business Name: Quintessa

Business Address: 1601 S. Silverado Trail P.O. Box 505 Rutherford

Contact: Jim Harris **Phone #:** (707) 967-1601

A. HAZARDOUS MATERIALS Have on site (for any purpose) hazardous materials at or above 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for compressed gases (include liquids in AST's and UST's or handle radiological materials in quantities for which an emergency plan is required pursuant to 10 CFR Parts 30, 40 or 70?	☐ YES ☒ NO
B. UNDERGROUND STORAGE TANKS (UST's) 1. Own or operate underground storage tanks?	☐ YES ☒ NO
2. Intend to upgrade existing or install new UST's?	☐ YES ☒ NO
C. ABOVE GROUND STORAGE TANKS (AST's) Own or operate AST's above these thresholds: -Any tank capacity with a capacity greater than 660 gallons, or -The total capacity for the facility is greater than 1,320 gallons?	☐ YES ☒ NO
D. HAZARDOUS WASTE 1. Generate hazardous waste?	☐ YES ☒ NO
2. Recycle more than 220 lbs/month of excluded or exempted recyclable materials (per H&SC §25143.2)?	☐ YES ☒ NO
3. Treat hazardous waste on site?	☐ YES ☒ NO
4. Treatment subject to financial assurance requirements (for Permit by Rule and Conditional Authorization)?	☐ YES ☒ NO
5. Consolidate hazardous waste generated at a remote site?	☐ YES ☒ NO
E. OTHER 1. Does the business activity include car/fleet washing, mobile detailing, auto-body related activities?	☐ YES ☒ NO
2. Does the business handle Extremely Hazardous Substances in amounts that would qualify for the Risk Management Program? Some examples and their thresholds common to Napa County include: Ammonia – 500 lbs, Sulfur Dioxide – 500 lbs, Chlorine – 500 lbs.	☐ YES ☒ NO

NAPA COUNTY

DEPARTMENT OF PUBLIC WORKS

1195 THIRD STREET • ROOM 201 • NAPA, CALIFORNIA 94559-3092
PHONE 707-253-4351 • FAX 707-253-4627
www.co.napa.ca.us/PublicWorks/Default.htm

ROBERT J. PETERSON
Director of Public Works
County Surveyor-County Engineer
Road Commissioner

WATER AVAILABILITY ANALYSIS

PHASE 1 STUDY

Introduction: As an applicant for a permit with Napa County, It has been determined that Chapter 13.15 of the Napa County Code is applicable to approval of your permit. One step of the permit process is to adequately evaluate the amount of water your project will use and the potential impact your application might have on the static groundwater levels within your neighborhood. The public works department requires that a Phase 1 Water Availability Analysis (WAA) be included with your application. The purpose of this form is to assist you in the preparation of this analysis. You may present the analysis in an alternative form so long as it substantially includes the information required below. Please include any calculations you may have to support your estimates.

The reason for the WAA is for you, the applicant, to inform us, to the best of your ability, what changes in water use will occur on your property as a result of an approval of your permit application. By examining the attached guidelines and filling in the blanks, you will provide the information we require to evaluate potential impacts to static water levels of neighboring wells.

Step #1:

Provide a map and site plan of your parcel(s). The map should be an 8-1/2"x11" reproduction of a USGS quad sheet (1:24,000 scale) with your parcel outlined on the map. Include on the map the nearest neighboring well. The site plan should be an 8-1/2"x11" site plan of your parcel(s) with the locations of all structures, gardens, vineyards, etc in which well water will be used. If more than one water source is available, indicate the interconnecting piping from the subject well to the areas of use. Attach these two sheets to your application. If multiple parcels are involved, clearly show the parcels from which the fair share calculation will be based and properly identify the assessors parcel numbers for these parcels. Identify all existing or proposed wells.

Step #2: **Determine total parcel acreage and water allotment factor. If your project spans multiple parcels, please fill a separate form for each parcel.**

Determine the allowable water allotment for your parcels:

Parcel Location Factors

The allowable allotment of water is based on the location of your parcel.

There are 3 different location classifications. Valley floor areas include all locations that are within the Napa Valley, Pope Valley and Carneros Region, except for areas specified as groundwater deficient areas. Groundwater deficient areas are areas that have been determined by the public works department as having a history of problems with groundwater. All other areas are classified as Mountain Areas. Please circle your location classification below (Public Works can assist you in determining your classification if necessary):

Valley Floor	1.0 acre feet per acre per year
Mountain Areas	0.5 acre feet per acre per year
MST Groundwater Deficient Area	0.3 acre feet per acre per year

Assessors Parcel Number(s)	Parcel Size (A)	Parcel Location Factor (B)	Allowable Water Allotment (A) X (B)
030-060-061	17.66 ac	1.0 AF/acre	17.66 AF

Step #3:

Using the guidelines in Attachment A, tabulate the existing and projected future water usage on the parcel(s) in acre-feet per year (af/yr). Transfer the information from the guidelines to the table below.

EXISTING USE:		**PROPOSED USE:**	
Residential	_____ af/yr	Residential	_____ af/yr
Farm Labor Dwelling	_____ af/yr	Farm Labor Dwelling	_____ af/yr
Winery	4.8 af/yr	Winery	4.8 af/yr
Commercial	_____ af/yr	Commercial	_____ af/yr
Vineyard*	4.0 af/yr	Vineyard*	4.0 af/yr
Other Agriculture	_____ af/yr	Other Agriculture	_____ af/yr
Landscaping	_____ af/yr	Landscaping	_____ af/yr
Other Usage (List Separately):		Other Usage (List Separately):	
_____	_____ af/yr	_____	_____ af/yr
_____	_____ af/yr	_____	_____ af/yr
_____	_____ af/yr	_____	_____ af/yr
TOTAL:	8.8 af/yr	**TOTAL:**	8.8 af/yr
TOTAL:	2.9M gallons**	**TOTAL:**	2.9M gallons**

*Water use for vineyards should be no lower than 0.2 AF—unless irrigation records are available that show otherwise.

**To determine your existing and proposed total water use in gallons, multiply the totals (in acre- feet) by 325,821 gal/AF.

Is the proposed use less than the existing usage ( ) Yes ( ) No (X) Equal

Step #4:

Provide any other information that may be significant to this analysis. For example, any calculations supporting your estimates, well test information including draw down over time, historical water data, visual observations of water levels, well drilling information, changes in neighboring land uses, the usage if other water sources such as city water or reservoirs, the timing of the development, etc. Use additional sheets if necessary.

See Water Availability Analysis Supporting Calculations prepared by Applied Civil Engineering Incorporated (attached).

Conclusion: Congratulations! Just sign the form and you are done! Public works staff will now compare your projected future water usage with a threshold of use as determined for your parcel(s) size, location, topography, rainfall, soil types, historical water data for your area, and other hydrogeologic information. They will use the above information to evaluate if your proposed project will have a detrimental effect on groundwater levels and/or neighboring well levels. Should that evaluation result in a determination that your project may adversely impact neighboring water levels, a phase two water analysis may be required. You will be advised of such a decision.

Signature: Michael R. Muelrath **Date:** 10/11/2010 **Phone:** (707) 320-4968

Attachment A: Estimated Water Use Guidelines

Typical Water Use Guidelines:

Primary Residence	0.5 to 0.75 acre-feet per year (includes some landscaping)
Secondary Residence	0.20 to 0.30 acre-feet per year
Farm Labor Dwelling	0.06 to 0.10 acre-feet per person per year

Non-Residential Guidelines:

Agricultural:	
Vineyards	
Irrigation only	0.2 to 0.5 acre-feet per acre per year
Heat Protection	0.25 acre feet per acre per year
Frost Protection	0.25 acre feet per acre per year
Farm Labor Dwelling	0.06 to 0.10 acre-feet per person per year
Irrigated Pasture	4.0 acre-feet per acre per year
Orchards	4.0 acre-feet per acre per year
Livestock (sheep or cows)	0.01 acre-feet per acre per year
Winery:	
Process Water	2.15 acre-feet per 100,000 gal. of wine
Domestic and Landscaping	0.50 acre-feet per 100,000 gal. of wine
Industrial:	
Food Processing	31.0 acre-feet per employee per year
Printing/Publishing	0.60 acre-feet per employee per year
Commercial:	
Office Space	0.01 acre-feet per employee per year
Warehouse	0.05 acre-feet per employee per year

PHASE I WATER AVAILABILITY ANALYSIS
SUPPORTING CALCULATIONS
FOR

QUINTESSA

LOCATED AT:
1601 Silverado Trail
St. Helena, CA 94574
NAPA COUNTY APN 030-060-061

PREPARED BY:
Applied Civil Engineering Incorporated
2074 West Lincoln Avenue
Napa, California 94558
Telephone: (707) 320-4968
www.appliedcivil.com

EXISTING WATER USE

Assumptions:

1. Production capacity of existing winery is 180,000 gallons per year.
2. Per Attachment A, winery usage will include process, domestic and landscaping uses for a total of 2.65 Acre-Feet per 100,000 gallons of wine per year.
3. Existing vineyard area is approximately 8.0 acres
4. Per Attachment A, vineyard irrigation is approximately 0.5 Acre-Feet / Acre / Year

Winery Use

180,000 Gallons of Wine/Year
2.65 Acre-Feet/Year per 100,000 Gallons of Wine

4.8 Acre-Feet/Year Total Winery Use

Vineyard Use

8.0 Acres of existing vineyard
0.5 Acre-Feet/Acre/Year

4.0 Acre-Feet/Year Total Vineyard Use

TOTAL EXISTING WATER USAGE 8.8 Acre-Feet/Year

PROPOSED WATER USE

Assumptions:

1. No changes in winery production capacity area proposed.
2. No changes in vineyard area or irrigation are proposed.

Winery Use

180,000 Gallons of Wine/Year
2.65 Acre-Feet/Year per 100,000 Gallons of Wine

4.8 Acre-Feet/Year Total Winery Use

Vineyard Use

8.0 Acres of existing vineyard
0.5 Acre-Feet/Acre/Year

4.0 Acre-Feet/Year Total Vineyard Use

TOTAL PROPOSED WATER USAGE 8.8 Acre-Feet/Year

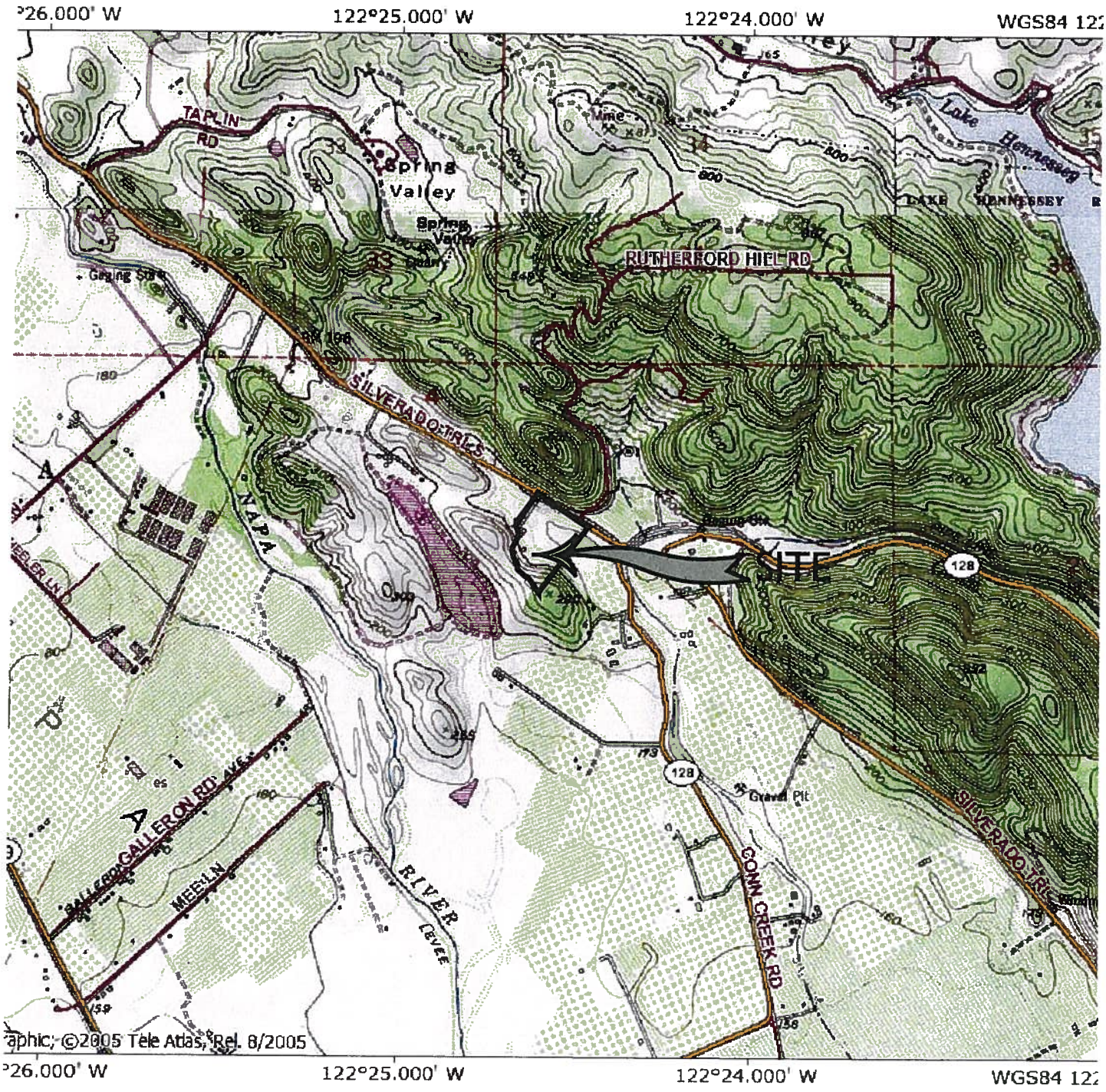
CONCLUSION

The proposed water usage for the parcel is equal to the existing water usage and is below the allowable threshold water usage for the parcel.

SITE TOPOGRAPHY MAP

REPRESENTS A PORTION OF THE USGS 7.5 MINUTE QUADRANGLE "RUTHERFORD"
REPRODUCED FROM NATIONAL GEOGRAPHIC TOPO!
OUTDOOR RECREATION MAPPING SOFTWARE

SCALE: 1" = 2,000'



APPLIED CIVIL ENGINEERING INCORPORATED
2074 West Lincoln Avenue
Napa, CA 94558
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www.appliedcivil.com

QUINTESSA

1601 SILVERADO TRAIL
ST. HELENA, CA 94574
APN 030-060-061

JOB NO. 10-106

OCTOBER 2010

George W. Nickelson, P.E.

Traffic Engineering – Transportation Planning

June 25, 2010

Ms. Lora McCarthy
Quintessa Winery
1601 Silverado Trail
Rutherford, CA 94573

Subject: ***Traffic Analysis for a Proposed Visitor Expansion Program at Quintessa Winery on Silverado Trail in Napa County***

Dear Ms McCarthy:

The attached report summarizes our traffic analysis of the proposed visitor expansion program at Quintessa Winery on Silverado Trail in Napa County (see Figure 1 for site location map). This scope of the analysis reflects our analyses of the project application and counts/field reviews of the winery traffic conditions.

Our analysis has determined that the proposed visitor expansion program would not significantly impact traffic conditions. The traffic generated by the added Winery visitors would have no measurable effects on traffic flows along Silverado Trail. The available sight distance along Silverado Trail would be adequate, and traffic increases at the access road intersection with Silverado Trail would not have a measurable effect on the intersection's operation. The existing left turn lane in Silverado Trail is appropriately designed for the projected volumes, and the site's internal access road would meet the Napa County standards.

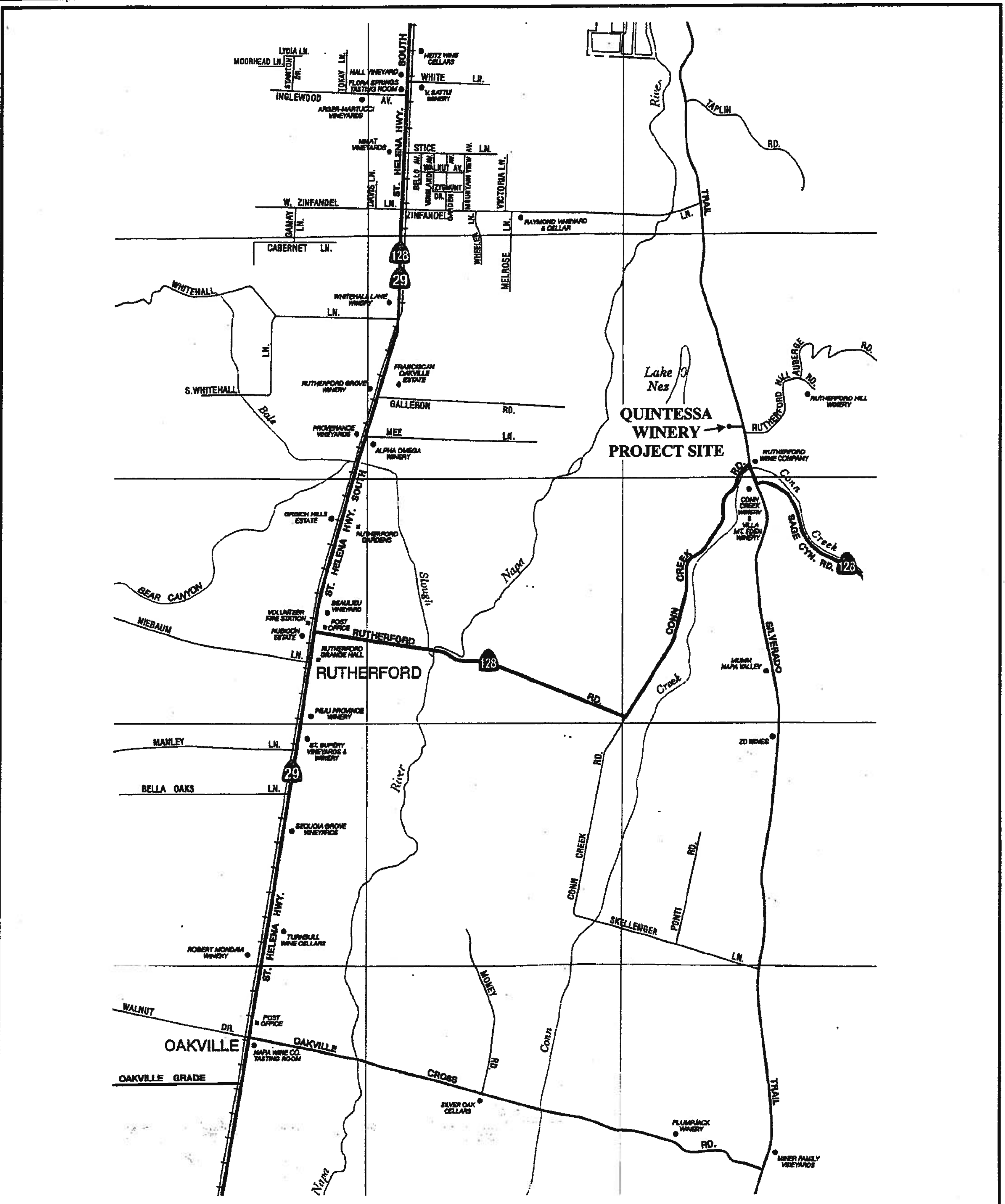
I trust that this report responds to your needs. Please review this information and call me with any questions or comments.

Sincerely,

George Nickelson

George W. Nickelson, P.E.

1901 Olympic Blvd., Suite 120 Walnut Creek, CA 94596 (925) 935-5014 Fax (925) 935-2247



Project Vicinity Map

North

omni-means

figure 1

1. Existing Traffic Conditions

a. Traffic Operations

Silverado Trail provides a primary north-south Napa County access along the east side of the Napa Valley and is a two-lane rural road in the area of the Quintessa Winery. Based on Napa County records, Silverado Trail has an average daily traffic volume of 9,577 vehicles south of Zinfandel Lane.[1] These volumes are within the roadway's capacity. Based on the volume and observed vehicle speeds, the operation would be categorized as in the Level of Service (LOS) "C" range.[2][3]

In the vicinity of the proposed project, Silverado Trail has two travel lanes, a left turn lane (a field review indicates that the left turn lane striping has been obliterated) and paved shoulders/bike lanes on both sides of the road. It is also noted that the left turn lane at the site driveway does not extend to the north – there is no refuge area for outbound left turns.

New traffic counts were conducted at the Silverado Trail site access during a weekday PM peak commute period (4-6 PM) and the Saturday afternoon peak period (1-3 PM).[4] Because the counts for this study were conducted in June, the volumes reflect traffic flows during the higher summer travel season. Peak hour traffic flows in/out of the winery are about 40%/60% north/south on a weekday and about 20%/80% north/south on a Saturday.

It is noted that during the weekday peak period counts, the highest Silverado Trail volumes occurred during the 4-5 PM hour and were about 30% higher than the 5-6 PM volumes. However, the Winery traffic was minimal during the 4-5 PM hour but peaked during the 5-6 PM hour. For this reason, the 5-6 PM hourly volumes were used in analyzing Winery access operations.

As outlined in Table 1, the delays for vehicles outbound from the Winery driveway are LOS "C" with average delays during the weekday PM peak hour and LOS "B" with short delays during the Saturday afternoon peak hour (LOS definitions and calculations are attached as appendices).

b. Vehicle Speeds and Sight Distance on Silverado Trail

The primary issues for access design are the vehicle visibility and operation relative to vehicles traveling on Silverado Trail and vehicles turning in/out of the access road. The required vehicle visibility or "corner sight distance" is a function of the travel speeds on Silverado Trail. Caltrans design standards indicate that for appropriate corner sight distance, "a substantially clear line of sight should be maintained between the driver of a vehicle waiting at the cross road and the driver of an approaching vehicle in the right lane of the main highway.".[5] Caltrans design guidelines also indicate that at private access intersections the minimum corner sight distance "shall be equal to the stopping sight distance".

Caltrans' design standards indicate that vehicles traveling at the 55 mph speed limit would require a stopping sight distance of about 500 feet, measured along the travel lanes on Silverado Trail.[6] Our

TABLE 1
EXISTING AND PROJECTED OPERATION AT THE QUINTESSA WINERY ACCESS ON SILVERADO TRAIL LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

Intersection Scenario	Weekday PM Peak Hour		Saturday Afternoon Peak Hour	
	Outbound	Inbound Left Turn	Outbound	Inbound Left Turn
Existing	LOS C/ 17.7 seconds	LOS A/ 8.9 seconds	LOS B/ 11.4 seconds	LOS A/ 8.4 seconds
With Expanded Visitor Program	LOS C/ 17.7 seconds	LOS A/ 8.9 seconds	LOS B/ 12.0 seconds	LOS A/ 8.4 seconds

field review and a review of available aerial photos indicate well over 500 feet of visibility to the north and south. During our review, it was also noted that extended visibility to the north is somewhat impeded by foliage on the west side of Silverado Trail.

c. Internal Circulation

The Winery is served by the existing internal access road which extends from Silverado Trail to visitor facility and winery. The road is about 20-22 feet wide and paved. This pavement width would exceed the Napa County standard of 18 feet for a driveway of this type.[7]

2. Traffic Effects of the Proposed Visitor Expansion Program

a. Traffic Operations Impacts

The key element of this analysis is to clearly identify the new traffic associated with the proposed visitor increases at the winery. The typical traffic that would be added to the roadways would represent visitor trips as well as any trips generated by employees.

The winery visitor program would increase from minimal levels (25 persons per week with 5-10 persons during a Saturday/Sunday and 2 persons each weekday) to 500 persons per week with 100 persons each on a Saturday or Sunday and about 60 persons each weekday. No increase in the current winery employment is expected.

The proposed winery expansion traffic generation has been calculated in Table 2. On a weekday, 45 added trips would be generated, and on a Saturday, 64 added trips would be expected. Because there would be no production increase, no further traffic increases would occur during the harvest season.

Assuming the added daily trips would be distributed comparable to existing flows, the daily traffic due to the proposed project would add about 0.3-0.5% to existing volumes on Silverado Trail south of the Winery. Changes of this magnitude would not be measurable within the typical daily fluctuations in traffic and traffic operations would be unchanged. The peak hour LOS and delays at the access intersection would be unchanged as a result the added trips due to the proposed Quintessa Winery visitor expansion program (see Table 1).

Consideration has also been given to the proposed three new "release" events. As shown in Table 2, during each of these events, a total of 48 daily trips would be generated. On such event days, the winery trips would add about 0.3% to existing volumes on Silverado Trail (assuming about 2/3 of the trips would be to/from the south). This increase would not be measurable within the typical flows on Silverado Trail. It is also noted that these events would occur in "off hours" and would not coincide with other winery visitor activities.

b. Site Access

The Quintessa Winery would continue to use the existing driveway on Silverado Trail. Again, sight distances appear to be adequate (over 500 feet to the north and south) for the posted 55 mph vehicle speed limit.

The proposed Quintessa Winery visitor expansion program would add 9-13 trips to the peak hour volumes at the access intersection with Silverado Trail (with the conservative assumption that peak hour volumes represent 20% of daily volumes). The existing and projected peak hour volumes are shown on Figure 2. With these increases, the delays for outbound vehicles would remain very satisfactory - LOS "C" during the weekday PM peak hour and LOS "B" during the Saturday afternoon peak hour.

The peak hour inbound left turn volume would increase by 1 vehicle in the weekday PM peak hour and 5 vehicles in the Saturday afternoon peak hour. Based on Caltrans design standards, only one vehicle would be expected to queue at any given time, but Caltrans recommends a minimum 50 foot left-turn storage lane – the existing left turn lane provides 100 feet of storage.[8] The projected volumes in/out of the site driveway are well below minimum thresholds at which a right-turn lane would be required (right turn lane warrant attached as an appendix).[9] At its intersection with SR 29, the driveway design appears satisfactory relative to turn paths for inbound and outbound right-turns by trucks (assuming moderately sized tractor/trailers with a 45-50 foot overall length).

The traffic associated with the proposed three additional "release events" would likely be more focused than the typical daily visitor traffic. A most conservative assumption would be that all of the 18 inbound and outbound visitor trips (see Table 2) would occur during the hour before and the hour after an event. The pre-event hour would have 12 inbound left turns and 6 inbound right turns and the post-event hour would have 6 outbound left turns and 12 outbound right turns. Again, these new events would occur during "off-peak" hours, and the volumes would not be expected to significantly affect Silverado Trail traffic flows.

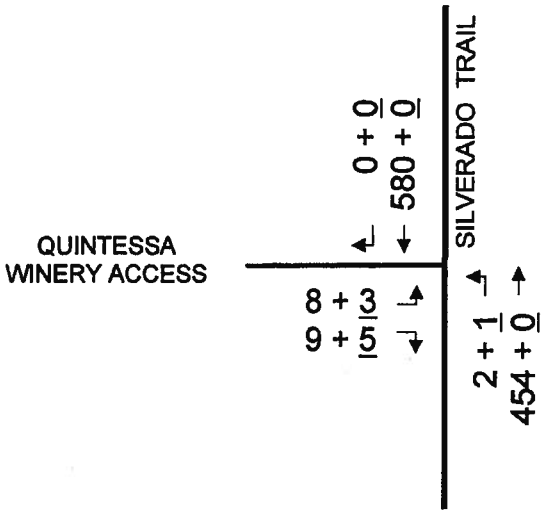
c. Internal Circulation

When traffic growth due to the visitor expansion program is added to the existing volumes, the total Quintessa Winery traffic would reflect about 30 vehicles during both the weekday and Saturday peak hours. The Winery access roadway width is 20-22 feet, exceeding the Napa County standard of 18 feet, and the access road could readily accommodate the expected volumes.

3. Summary and Conclusions

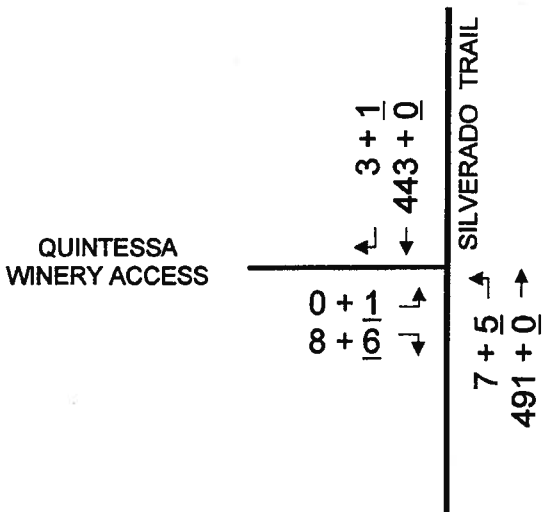
The traffic generated by the proposed Quintessa Winery visitor expansion project would have no measurable effects on traffic flows along Silverado Trail. The added trips would increase Silverado Trail traffic volumes by about 0.3-0.5% and the road's operation would be unchanged. During the

WEEKDAY EXISTING + PROJECT PEAK HOUR VOLUMES:



PROJECT TRIPS:
Weekday = 9 (1 in, 8 out)
Saturday = 13 (6 in, 7 out)

SATURDAY EXISTING + PROJECT PEAK HOUR VOLUMES:



Existing + Project Peak Hour Volumes
Weekday and Weekend

North

George W. Nickelson, P.E.

figure 2

monthly events, the winery traffic would add about 0.3% to Silverado Trail volumes – again, this change would not be measurable.

Based on a field review and a review of available aerial photos, the available site distance along Silverado Trail would be adequate for the posted speed limit. It is recommended that foliage be trimmed (north of the driveway on the west side of Silverado Trail) to maximize sight distance.

Traffic increases at the access road intersection with Silverado Trail would not have a measurable effect on the intersection's operation. The existing traffic left turn lane on Silverado Trail would provide adequate storage for existing and project vehicles. It is recommended that the Silverado Trail left turn lane striping be renewed.

The winery is served by a 20-22 foot wide access road, designed to exceed the Napa County standard of 18 feet. Overall, the access road would reflect an appropriate design (as determined by Napa County) to accommodate the existing and projected traffic flows. It is recommended that a brief centerline (extending about 50 feet back from Silverado Trail) be striped on the access road to better delineate inbound/outbound traffic flows.

References:

(1) Napa County, traffic volumes for Silverado Trail based on May 2003 count data.

(2) Transportation Research Board (TRB), *Highway Capacity Manual - Special Report 209*, 1994.

(3) TRB, *Highway Capacity Manual*, 2000.

(4) George W. Nickelson, P.E., traffic counts on June 11, 2010 and June 12, 2010.

(5) Caltrans, *Highway Design Manual*, July 24, 2009.

(6) Caltrans, ibid.

(7) Napa County, *Adopted Road and Street Standards*, revised August 31, 2004.

(8) Caltrans, *Guidelines for Reconstruction of Intersections,* August 1985. The maximum peak hour northbound left turn volume is 12 vehicles, requiring 1 vehicle storage, calculated as follows:

- 12 hourly vehicles/60 x 2 minutes of storage = 0.4 or 1 vehicle.

(9) Transportation Research Board, *Report 279 – Intersection Channelization Design Guide*, 1985.

TABLE 2
TRIP GENERATION FOR THE PROPOSED
QUINTESSA WINERY VISITOR EXPANSION PROGRAM

Added Daily Traffic During a Typical Weekday:		
• 58 added visitors/2.6 per vehicle x 2 one-way trips	=	45 daily trips
Added Daily Traffic During a Typical Saturday:		
• 90 added visitors/2.8 per vehicle x 2 one-way trips	=	64 daily trips
Added Daily Traffic During a "release" Event (3 added events annually):		
• 50 visitors/2.8 per vehicle x 2 one-way trips	=	36 daily trips
• 6 event employees[(1)] x 2 one-way trips per employee	=	12 daily trips
		48 daily trips

(1) A "release event" would have an estimated 6 employees related to food service.

APPENDICES

- Level of Service Definitions
- Level of Service Calculations
- Right Turn Lane Warrant Graph

LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE	SIGNALIZED INTERSECTIONS	UNSIGNALIZED INTERSECTIONS*
"A"	Uncongested operations, all queues clear in a single-signal cycle. (Average stopped delay less than 10 seconds per vehicle; V/C less than or = 0.60).	Little or no delay. (Average delay of ≤ 10 seconds)
"B"	Uncongested operations, all queues clear in a single cycle. (Average delay of 10-20 seconds; V/C=0.61-0.70).	Short traffic delays. (Average delay of >10 and ≤15 secs.)
"C"	Light congestion, occasional backups on critical approaches. (Average delay of 20-35 seconds; V/C=0.71-0.80).	Average traffic delay. (Average delay of >15 and ≤25 secs.)
"D"	Significant congestion of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. (Average delay of 35-55 seconds; V/C=0.81-0.90).	Long traffic delays for some approaches. (Average delay of >25 and ≤35 secs.)
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). (Average delay of 55-80 seconds; V/C=0.91-1.00).	Very long traffic delays for some approaches. (Average delay of >35 and ≤50 secs.)
"F"	Total breakdown, stop-and-go operation. (Average delay in excess of 80 seconds; V/C of 1.01 or greater).	Extreme traffic delays for some approaches (intersection may be blocked by external causes--delays >50 seconds).

* Level of Service refers to delays encountered by certain stop sign controlled approaches. Other approaches may operate with little delay.

Source: Transportation Research Board, Highway Capacity Manual, 2000.

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Analysis Summary

General Information

Analyst	GWN
Agency or Company	GWN
Analysis Period/Year	PM 2010
Comment	EXISTING WEEKDAY

Site Information

Jurisdiction/Date	NAPA COUNTY 6/14/2010
Major Street	SILVERADO TRAIL
Minor Street	QUINTESSA DRIVEWAY

Input Data

Lane Configuration	SB	NB	EB	WB
Lane 1 (curb)	TR	T	LR	
Lane 2		L		
Lane 3				
Lane 4				
Lane 5				

	SB			NB			EB			WB		
Movement	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)		580	0	2	454		8		9			
PHF		0.90	0.90	0.90	0.90		0.90		0.90			
Percent of heavy vehicles, HV		3	3	3	3		3		3			
Flow rate		644	0	2	504		9		10			
Flare storage (# of vehs)												
Median storage (# of vehs)							0					

Signal upstream of Movement 2 _____ ft Movement 5 _____ ft

Length of study period (h) 1.00

Output Data

	Lane	Movement	Flow Rate (veh/h)	Capacity (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS	Approach Delay and LOS
EB	1	LR	19	303	0.063	0	17.7	C	17.7
	2								
	3								C
WB	1								
	2								
	3								
SB		①							
NB		④	2	936	0.002	0	8.9	A	

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Analysis Summary

General Information

Analyst	GWN
Agency or Company	GWN
Analysis Period/Year	PM 2010
Comment	EXISTING SATURDAY

Site Information

Jurisdiction/Date	NAPA COUNTY 6/14/2010
Major Street	SILVERADO TRAIL
Minor Street	QUINTESSA DRIVEWAY

Input Data

Lane Configuration	SB	NB	EB	WB
Lane 1 (curb)	TR	T	LR	
Lane 2		L		
Lane 3				
Lane 4				
Lane 5				

	SB			NB			EB			WB		
Movement	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)		443	3	7	491		0		8			
PHF		0.90	0.90	0.90	0.90		0.90		0.90			
Percent of heavy vehicles, HV		3	3	3	3		3		3			
Flow rate		492	3	8	546		0		9			
Flare storage (# of vehs)												
Median storage (# of vehs)							0					

Signal upstream of Movement 2 _____ ft Movement 5 _____ ft

Length of study period (h) 1.00

Output Data

	Lane	Movement	Flow Rate (veh/h)	Capacity (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS	Approach Delay and LOS
EB	1	LR	9	573	0.016	0	11.4	B	11.4
	2								
	3								B
WB	1								
	2								
	3								
SB		(1)							
NB		(4)	8	1063	0.007	0	8.4	A	

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Analysis Summary

General Information

Analyst	GWN
Agency or Company	GWN
Analysis Period/Year	PM 2010
Comment	EXISTING + PROJECT WEEKDAY

Site Information

Jurisdiction/Date	NAPA COUNTY 6/14/2010
Major Street	SILVERADO TRAIL
Minor Street	QUINTESSA DRIVEWAY

Input Data

Lane Configuration	SB	NB	EB	WB
Lane 1 (curb)	TR	T	LR	
Lane 2		L		
Lane 3				
Lane 4				
Lane 5				

	SB			NB			EB			WB		
Movement	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)		580	0	3	454		11		14			
PHF		0.90	0.90	0.90	0.90		0.90		0.90			
Percent of heavy vehicles, HV		3	3	3	3		3		3			
Flow rate		644	0	3	504		12		16			
Flare storage (# of vehs)												
Median storage (# of vehs)							0					

Signal upstream of Movement 2 _____ ft Movement 5 _____ ft

Length of study period (h) 1.00

Output Data

	Lane	Movement	Flow Rate (veh/h)	Capacity (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS	Approach Delay and LOS
EB	1	LR	28	312	0.090	0	17.7	C	17.7
	2								
	3								C
WB	1								
	2								
	3								
SB		①							
NB		④	3	936	0.004	0	8.9	A	

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Analysis Summary

General Information

Analyst	GWN
Agency or Company	GWN
Analysis Period/Year	PM 2010
Comment	EXISTING + PROJ SATURDAY

Site Information

Jurisdiction/Date	NAPA COUNTY 6/14/2010
Major Street	SILVERADO TRAIL
Minor Street	QUINTESSA DRIVEWAY

Input Data

Lane Configuration	SB	NB	EB	WB
Lane 1 (curb)	TR	T	LR	
Lane 2		L		
Lane 3				
Lane 4				
Lane 5				

	SB			NB			EB			WB		
Movement	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)		443	4	12	491		1		14			
PHF		0.90	0.90	0.90	0.90		0.90		0.90			
Percent of heavy vehicles, HV		3	3	3	3		3		3			
Flow rate		492	4	13	546		1		16			
Flare storage (# of vehs)												
Median storage (# of vehs)							0					

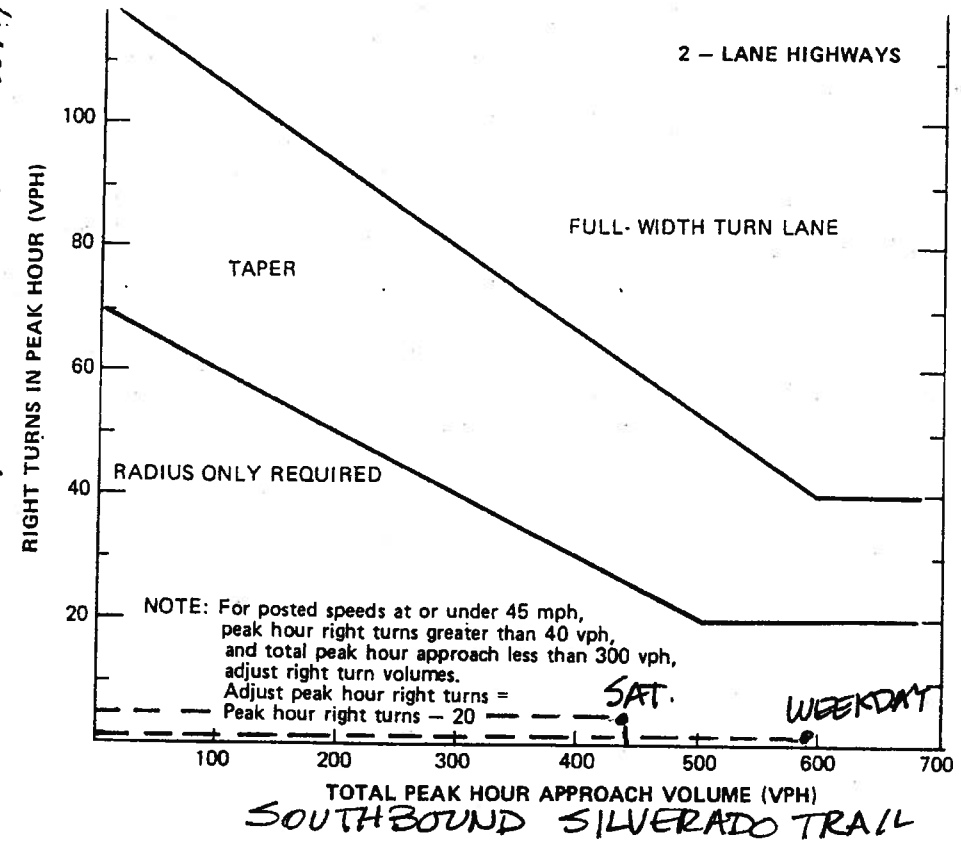
Signal upstream of Movement 2 _____ ft Movement 5 _____ ft

Length of study period (h) 1.00

Output Data

	Lane	Movement	Flow Rate (veh/h)	Capacity (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS	Approach Delay and LOS
EB	1	LR	17	530	0.032	0	12.0	B	12.0
	2								
	3								B
WB	1								
	2								
	3								
SB	(1)								
NB	(4)		13	1062	0.013	0	8.4	A	

SOUTHBOUND RIGHT TURNS AT QUINTESSA DRIVEWAY



SOUTHBOUND SILVERADO TRAIL

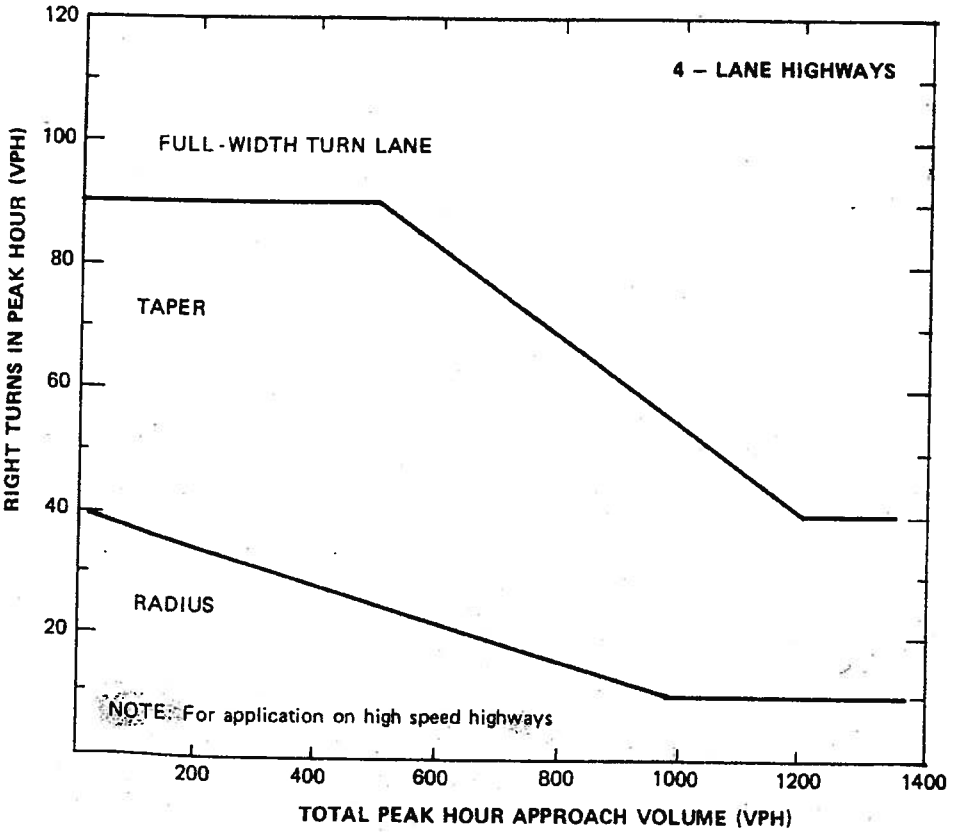


Figure 4-23. Traffic volume guidelines for design of right-turn lanes. (Source: Ref. *4-11*)