

“F”

## Water Availability Analysis



# WATER AVAILABILITY ANALYSIS

For:

Knollwood Vineyards  
4101 Big Ranch Road  
Napa, CA 94558

APN 036-190-026

Prepared for:

J. Kevin Corley  
4242 Big Ranch Road  
Napa, CA 94558

Project # 4117060.0

March 19, 2019  
**Revised: July 17, 2024**





**TABLE OF CONTENTS**

**I. EXECUTIVE SUMMARY..... 1**

**II. TIER 1 WATER USE CALCULATIONS ..... 2**

**ATTACHMENTS**

- 1. Well Exhibit
- 2. Stream Exhibit



**I. Executive Summary**

Knollwood Vineyards (APN 036-190-026) is seeking a use permit modification to acknowledge current production of 33,000 gallons of wine per year, increase production to 40,000 gallons per year, increase employees, and permit visitation and marketing events. Knollwood Vineyards currently irrigates on-site vineyards with well water. Process wastewater will be reclaimed, treated on-site, and reused to supplement vineyard irrigation.

Below is a summary of the Approved water use under the original entitlement, the current water use under presently Existing Conditions, and Proposed water use under the proposed expansion. Detailed calculations can be found on the next page.

Usage Type	Approved Usage [af/yr]	Existing Usage [af/yr]	Proposed Usage [af/yr]
Vineyard	14.35	14.35	14.30
Winery			
Domestic Water	0.07	0.20	0.24
Process Water	0.31	0.51	0.61
Reclaimed Process Wastewater	0.00	0.00	-0.61
Landscape Water	0.10	0.17	0.20
<b>Totals (Acre-ft per Year)</b>	<b>14.83</b>	<b>15.23</b>	<b>14.74</b>

New County groundwater requirements in response to Executive Order N-7-22 allow for 0.3 af/acre/yr or no net increase over the approved entitlement for parcels within the Napa Valley sub-basin.

The proposed project will result in a net decrease of groundwater use, from 14.83 acre-foot/year approved (15.23 acre-foot/year existing) to 14.74 acre-foot/year proposed. There are no neighboring wells within 500’ of the project well, so a Tier II analysis is not required. See Well Exhibit in Attachment 1. There are no streams within 1,500’ of the project well, so a Tier III analysis is not required. See Stream Exhibit in Attachment 2.

Based on the methods described in the 2015 Water Availability Analysis Guidance documents, as modified by N-7-22, this parcel has a sufficient approved groundwater allotment to support the proposed use.



## II. Tier 1 Water Use Calculations

### Original Approved Entitlement

#### Approved Vineyard Irrigation and Landscaping Water Demand

Vineyard – Irrigation only –	(0.5 af/ac-yr x	28.7	acres vineyard) =	14.35	af/yr
Landscape –	(0.5 af / 100,000 gallon wine x	20,000	gal wine/year) =	0.10	af/yr

#### Approved Winery Domestic Water Demand

Employees –	(15 gal/person/day x 365 days/yr x	4	2FT+2PT employees/day) =	0.07	af/yr
-------------	------------------------------------	---	--------------------------	------	-------

#### Approved Winery Process Water Demand

Process Water –	(5 gal water / 1 gallon wine x	20,000	gal wine/year) =	0.31	af/yr
-----------------	--------------------------------	--------	------------------	------	-------

<b>Total Approved Water Demand</b>	<b>Total =</b>	<b>14.83</b>	<b>af/yr</b>
------------------------------------	----------------	--------------	--------------

### Existing Conditions

#### Existing Vineyard Irrigation and Landscaping Water Demand

Vineyard – Irrigation only –	(0.5 af/ac-yr x	28.7	acres vineyard) =	14.35	af/yr
Landscape –	(0.5 af / 100,000 gallon wine x	33,000	gal wine/year) =	0.17	af/yr

#### Existing Winery Domestic Water Demand

Employees –	(15 gal/person/day x 365 days/yr x	11	6FT+5PT employees/day) =	0.18	af/yr
Visitors –	(3 gal/person/day x 365 days x	7	visitors/day) =	0.02	af/yr
			Total =	0.20	af/yr

#### Existing Winery Process Water Demand

Process Water –	(5 gal water / 1 gallon wine x	33,000	gal wine/year) =	0.51	af/yr
-----------------	--------------------------------	--------	------------------	------	-------

<b>Total Existing Water Demand</b>	<b>Total =</b>	<b>15.23</b>	<b>af/yr</b>
------------------------------------	----------------	--------------	--------------



**Proposed Expansion**

**Proposed Vineyard Irrigation and Landscaping Water Demand**

Vineyard –	Irrigation only –	(0.5 af/ac-yr x	28.6	acres vineyard) =	14.30	af/yr
Landscape –	(0.5 af / 100,000 gallon wine x	40,000		gal wine/year) =	0.20	af/yr

**Proposed Winery Domestic Water Demand**

Employees –	(15 gal/person/day x 365 days/yr x	10	8FT+2PT employees/day) =	0.17	af/yr
Harvest Employees –	(15 gal/person/day x 45 days/yr x	5	employees/day) =	0.01	af/yr
Visitors –	(3 gal/person/day x 352 days/yr x	14	visitors/day) =	0.05	af/yr
Small Marketing Events –	(10 gal/person/day x 10 days/yr x	25	visitors/day) =	0.008	af/yr
Med. Marketing Events –	(10/gal/person/day x 2 days/yr x	50	visitors/day) =	0.003	af/yr
Large Marketing Events –	(10/gal/person/day x 1 days/yr x	100	visitors/day) =	0.003	af/yr
Small Marketing Staff –	(15/gal/person/day x 10 days/yr x	2	staff/day) =	0.0004	af/yr
Med. Marketing Staff –	(15/gal/person/day x 2 days/yr x	3	staff/day) =	0.0003	Af/yr
Large Marketing Staff –	(15/gal/person/day x 1 days/yr x	4	staff/day) =	0.0002	af/yr
			Total =	0.24	af/yr

**Proposed Winery Process Water Demand**

Process Water –	(5 gal water / 1 gallon wine x	40,000	gal wine/year) =	0.61	af/yr
-----------------	--------------------------------	--------	------------------	------	-------

**Reclaimed Process Wastewater for Irrigation** -0.61 af/yr

**Total Proposed Water Demand** **Total = 14.74 af/yr**



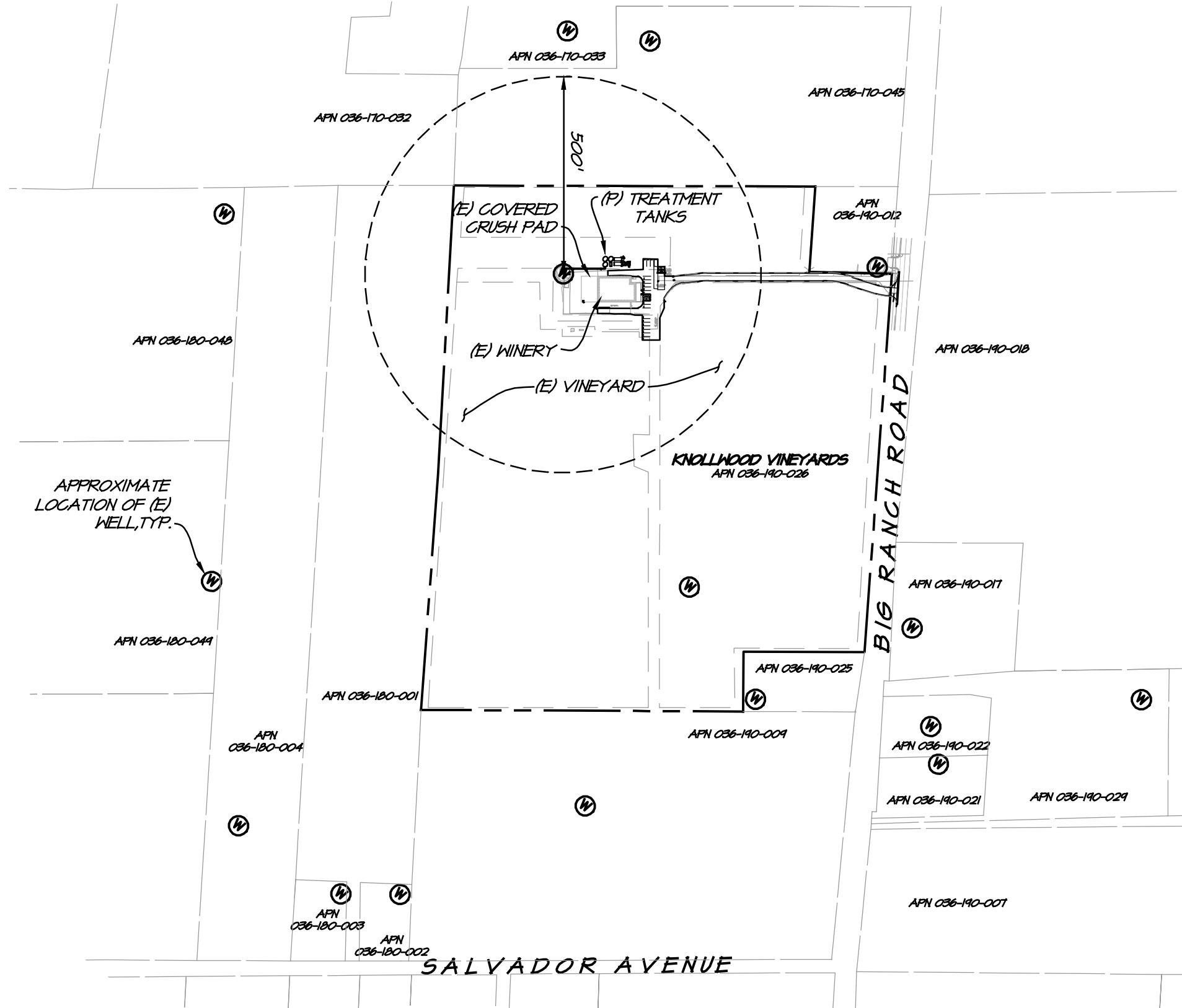
## ATTACHMENT 1

### Well Exhibit

# KNOLLWOOD VINEYARDS WELL EXHIBIT

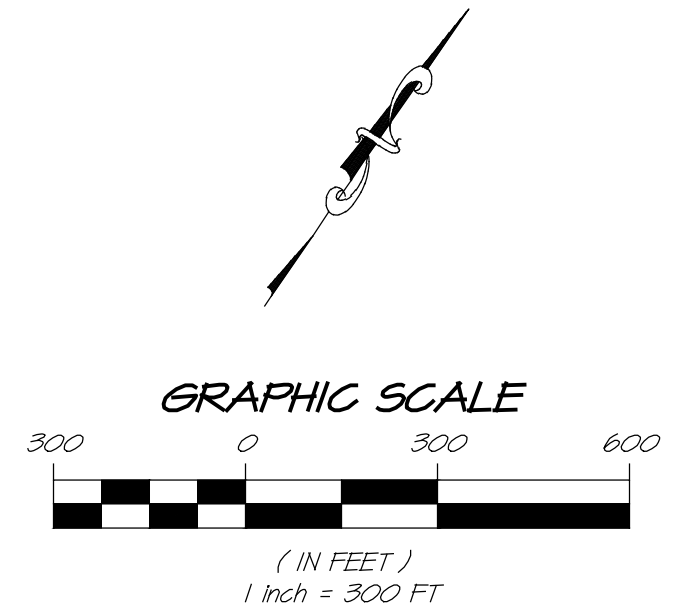
NAPA COUNTY

CALIFORNIA



## SITE PLAN

SCALE: 1" = 300"



<b>RSA<sup>+</sup></b>	1515 FOURTH STREET
	NAPA, CALIF. 94559
	OFFICE   707   252.3301
	+ www.RSAcivil.com +

RSA<sup>+</sup> | CONSULTING CIVIL ENGINEERS + SURVEYORS + EST. 1980

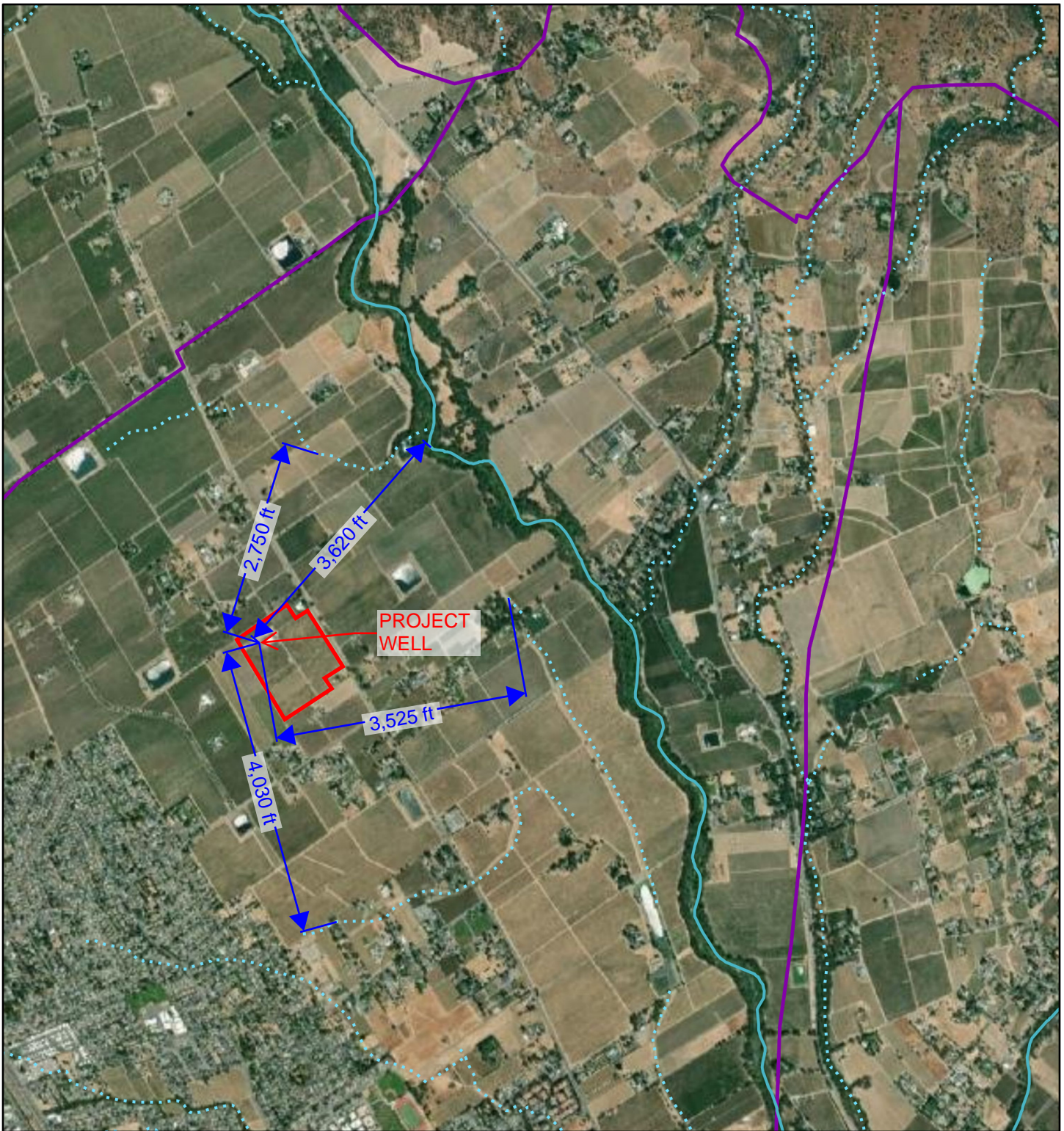




## ATTACHMENT 2

### Stream Exhibit

# KNOLLWOOD VINEYARDS STREAM EXHIBIT



7/22/2022, 1:23:04 PM

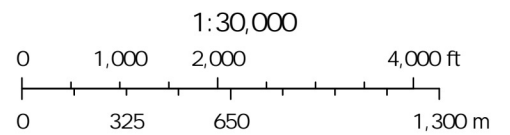
 County Boundary

NHD - Flowline - Large Scale

 Perennial

 Intermittent

 Napa County GW Subareas



Earthstar Geographics

ArcGIS Web AppBuilder