



June 17, 2024

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**SUBJECT: WATER AVAILABILITY ANALYSIS REPORT
4370 OLD SONOMA HIGHWAY
NAPA, CALIFORNIA
NAPA COUNTY APN 047-110-017
EBA Job No. 23-3367**

Mrs. Smith,

EBA Engineering (EBA) is pleased to present this Water Availability Analysis (WAA) in connection with permitting services for the development of the site located at 4370 Old Sonoma Highway in Napa, California (herein referred to as the project site). The intent of this WAA is to provide required information to obtain a water use permit for the development of the site in conformance to the requirements of Napa County's WAA Guidance Document, adopted May 12, 2015 (Napa County, 2015).

This WAA concludes that site groundwater demands are less than the estimated volume of water available for groundwater recharge on the project site under average precipitation years. Further, the existing groundwater well at the project site, is located less than 500 feet to an existing nearby well(s) and located less than 1,500 to a nearby Significant Stream(s). As such, Tier 1, 2, and 3 analyses will be evaluated in conformance with the previously outlined Napa County permitting guidance documentation.

- Well Permit Standards – Applicable Tables available on the Napa County website on the Groundwater Sustainability page;
- *Draft GSA Response to the Governor's Emergency Executive Order*, prepared by Napa County, dated June 2, 2022; and
- *WAA Guidance Document*, prepared by Napa County, adopted May 12, 2015.

1.0 BACKGROUND INFORMATION

1.1 Project Description

The project site is located on Old Sonoma Highway approximately 4-miles southwest of the City of Napa in Napa County (Figure 1, Appendix A). The project site is further identified by Napa County Assessor's Parcel Number (APN) 047-110-017 and is 2.35-acres (AC) in size. Please refer to Appendix D of this report for a complete project site description and site plan illustration, provided in the March 2024 *Wastewater Feasibility Study* prepared by NorCal Civil Engineering, Inc. Ground elevations across the project site range from approximately 115 to 130 feet above mean sea level (MSL). The entire project site is mapped as Haire loam soil with a hydrologic soil group rating of D (NRCS, 2020).

There is one existing well on the project site. According to the Well Completion Report (WCR) (No. e0173012) for the on-site well, archived within the Napa County Electronic Document Retrieval database, the well is completed to a depth of 610 feet below ground surface (BGS), had a depth-to-water (DTW) of 191 feet BGS and had a yield of 30 gallons per minute (GPM) at the time of well completion. A copy of the WCR (No. e0173012) for the on-site well can be found in Appendix B. Please refer to Appendix D of this Report for the location of the existing on-site well provided in the March 2024 *Wastewater Feasibility Study* created by NorCal Civil Engineering, Inc.

1.2 Hydrogeologic Setting

The Coast Ranges geomorphic province encapsulates the greater north bay area with northwest-trending ridges and valleys that run subparallel to the San Andreas Fault Zone. Regional geology surrounding the project site has been mapped to generally consist of Quaternary aged stream channel deposits (Qhc), stream terrace deposits (Qht), alluvium (Qa, Qpa, and Qoa), colluvium (Qc), and landslide deposits (Qls) overlying the early Pleistocene to Pliocene Huichica Formation (Th), the late Miocene to Pliocene aged Sonoma Volcanics (Tsvm and Tsvt), and the early Cretaceous to late Jurassic aged Great Valley Sequence (KJgv) (California Geological Survey [CGS], 2004). In the immediate vicinity of the project site, the surface geology has been mapped to consist predominantly of alluvium. Mapped geology in the vicinity of the project site is consistent with the regional hydrogeology described in the *Napa Valley Subbasin Groundwater Sustainability Plan* (Napa County, 2022a). Please refer to the Geologic Map included herein as Figure 3 (Appendix A).

Well Completion Reports maintained by California Department of Water Resources (DWR) for nearby wells are consistent with mapped geology. Wells nearby the project site are reportedly completed in predominantly the Great Valley Sequence. Drillers described encountering predominantly clay, sand, gravel, sandstone, and shale from the ground surface to the maximum depths explored. Water bearing zones for wells completed in the Great Valley Sequence are not expected to contain significant amounts of groundwater (Napa County, 2022a). Reported well yields in nearby wells range from 4

to 40 GPM. Please refer to Figure 3 (Appendix A) for a map of the geology in the vicinity of the project site.

A mapped Significant Stream, Carneros Creek, is located approximately 435 feet to the west of the existing on-site well. Please refer to Figure 2 (Appendix A) for a map of the project site in relation to Carneros Creek.

1.3 Local Climate

Review of published data by the Parameter-Elevation Regressions on Independent Slopes Model (PRISM) Climate Group, indicates the 10-year (2012 – 2021) average annual rainfall in the vicinity of the project site as defined by correspondence with Napa County is 23.2 inches per year (Prism, 2023). EBA understands the 10-year rainfall is considered average as defined by correspondence with Napa County. The 10-year data were evaluated using the 4 km spatial resolution and the interpolate grid cell values function.

Mean annual potential evapotranspiration (ET_o) was estimated to be 43.9 inches per year based on reference ET_o tables provided in the California Irrigation Management Information System (CIMIS) Reference Evapotranspiration Website (CIMIS, 2023).

2.0 EXISTING AND PROPOSED ON-SITE GROUNDWATER DEMANDS

Water demand was estimated based on information provided by the Client, Napa County Alternative Sewage Treatment Systems (ASTS) Guidelines, and the *WAA Guidance Document*. Please refer to Appendix D of this Report for the water demand estimates provided in the March 2024 *Wastewater Feasibility Study* created by NorCal Civil Engineering, Inc. NorCal reported a daily water demand of 2,168 gallons per day (GPD) for the proposed project. In addition to the water demand estimates provided by Norcal, a landscape irrigation estimate of 242 GPD for the proposed project was provided by the Client. Therefore, the maximum daily water demand of approximately 2,410 GPD (2,168 GPD + 242 GPD) is equivalent to an annual groundwater use of approximately 2.70 AFY.

3.0 GROUNDWATER RECHARGE ANALYSES

3.1 Project Site Groundwater Recharge Methodology

EBA analyzed the project site groundwater budget by comparing estimated inflows and outflows from the aquifer complex. The volume available for recharge was estimated based on precipitation and septic return flows as the principal source of inflow while outflows were estimated based on run-off, evapotranspiration, canopy interception, and spring losses. While secondary sources of inflow (such as upgradient boundary flow), and secondary sources of outflow (such as downgradient boundary flow, and surface-water-groundwater interaction) potentially contribute to the groundwater budget, they are

assumed to be equal and resultant in no net gain or loss. Based on this approach, the following equation was used to calculate potential volume of water available for recharge:

$$\text{Volume of Water Available for Recharge} = (P + \text{SRF}) - (R + ET_a + E_{Cl} + S)$$

where “P” is equal to precipitation (in acre-feet per year [AFY]), “SRF” is equal to Septic Return Flows (in AFY), “R” is equal to run-off (in AFY), “ET_a” is equal to actual evapotranspiration (in AFY), “E_{Cl}” is equal to evaporative losses related to canopy interception (in AFY) and “S” is equal to spring flow (in AFY). The groundwater recharge analysis was performed during average precipitation years (10-year period from 2012 to 2021). Details regarding the calculation of each of these variables are presented below.

Precipitation (P)

The total volume of precipitation that falls within the area of the project site was calculated by multiplying the average annual precipitation rate (23.2 inches per year) by the sum of the area of the project site (2.35 AC). The total annual precipitation over this area corresponds to 4.54 AFY during average annual rainfall scenario.

Septic Return Flows (SRF)

Based on the lack of a local sanitary sewer system near the project site, wastewater associated with indoor use is currently and will be managed in the future via an on-site sewage disposal system consisting of a septic tank (solids collection) and leach field (liquid effluent). The leach field component is designed to promote percolation of the liquid effluent into the subgrade and allow for natural filtration and treatment of the effluent prior to reaching the underlying groundwater table.

An 80 percent recharge factor is used in recharge estimates in the Napa County Groundwater Sustainability Plan (GSP) Section 8 (Napa County, 2022b). NorCal Engineering provided a daily water demand estimate of 2,168 GPD, which is equivalent to an annual use of approximately 791,320 gallons per year (GPY) or 2.43 AFY, assuming a 365-day use frequency. The total annual septic return flow to groundwater for the proposed project, using an 80 percent recharge factor, is estimated to be 1.94 AFY.

Run-off (R)

The percentage of the total precipitation that results as outflow (i.e., run-off) was estimated by comparing the ground slopes within the project site to run-off coefficients (RCs) for various types of developed and natural settings (ODOT, 2014). In general, slope surfaces were separated by areas identified as “flat” (less than 2 percent), “rolling” (2 to 10 percent) and “hilly” (greater than 10 percent). In this regard, the relative percentages of slopes within the project site that align with these categories are approximately 0, 100, and 0 percent, respectively. These areas, in turn, were further separated by the types of settings. Table 1 on the following page provides a breakdown of the setting types and range of RCs used in the analysis:

TABLE 1 (PROJECT SITE) RUNOFF COEFFICIENTS AND AREAS		
Land Type	Area (AC)	Runoff Coefficient (RC)
Oak	0.25	0.15
Seasonal Grasses	1.124	0.22
Landscaping	0.107	0.11
Bioretention Zones	0.025	0.15
Roofs/Concrete Paths/Driveways	0.518	0.90
Gravel Driveway	0.325	0.85
TOTAL	2.35	-

Using the aforementioned variables, the annual run-off volume for each area was calculated by multiplying the respective areas by the annual precipitation volume, followed by multiplying the corresponding products by the applicable RC. Please note that the acreages summarized in Table 1 correspond to future land use of the project site parcel. The summation of all the area run-off volumes equates to the total annual run-off volume for the entire project site. The average annual run-off volume was calculated to be approximately 2.04 AFY during average precipitation years.

Actual Evapotranspiration (ET_a)

As previously noted in Subsection 1.3 (*Local Climate*), the mean annual potential evapotranspiration (ET_o) for the area is estimated to be 43.9 inches per year, which translates to a total ET_o volume of approximately 8.60 AFY within the area of the project site parcel. Actual Evapotranspiration (ET_a) in turn, was calculated using a Water Use Classification of Landscape Species (WUCOLS) site specific model as described in *A Guide to Estimating Irrigation Water Needs of Landscape Plantings in California* (UC Cooperative Extension, 2000). The WUCOLS model estimates ET_a for the native vegetation and landscaping. A review of aerial photography was utilized to determine appropriate species factors (K_s) and density factors (K_D) as outlined in the WUCOLS Guidance Documentation. A microclimate factor (K_{MC}) of 1 was selected based upon review of available climate data. Resulting landscape coefficients (K_L) were then multiplied by respective unit areas to determine an estimated ET_a for these vegetation types within the project site parcel.

The total ET_a within the project site parcel was then calculated to represent approximately 0.79 AFY during average precipitation years.

Canopy Interception (EC_i)

Canopy interception corresponds to the fraction of rainfall that is intercepted by the canopy of trees and shrubs and subsequently lost to evaporation. This fraction was estimated using equations developed by Helvey and Patric (Helvey & Patric, 1965) that utilize gross rainfall, throughput (i.e., rainfall that reaches the ground through spaces in

the vegetative canopy and as drip from leaves, twigs, and stems), and stemflow (i.e., rainfall that is caught on the canopy and reaches the ground by running down stems) variables. The calculation excluded grassland, vineyard, surface water bodies, pavement, and roof areas as the fraction of canopy interception for these areas is assumed to be negligible or not applicable. All other areas within the project site covered by tree canopy (approximately 0.25 AC) were subjected to canopy interception losses. Canopy interception losses were calculated to be approximately 0.03 AFY during average precipitation years.

Springs

Published data regarding spring flow discharges in the area were not available. EBA did not identify any potential spring locations during our field reconnaissance.

Water Budget Results

Using each of the calculated values in the groundwater recharge equation and taking into consideration the septic return flows to groundwater, the corresponding estimated volume of water available for groundwater recharge on the project site is approximately 3.62 AFY during average precipitation years. Based on the estimated groundwater demand of 2.70 AFY, this total groundwater use equates to approximately 75 percent of the water available for recharge in the area of the project site during average precipitation years. Results from the project water budget analysis are summarized in Tables 2 below.

TABLE 2 RESULTS FROM PROJECT SITE RECHARGE CALCULATIONS AVERAGE RAINFALL YEAR		
<i>Description</i>	<i>Inflow/Outflow</i>	<i>Volume (AFY)</i>
Precipitation	Inflow	+4.54
Septic Return Flows	Inflow	+1.94
Run-off	Outflow	-2.04
Actual Evapotranspiration	Outflow	-0.79
Canopy Interception	Outflow	-0.03
Springs	Outflow	- 0.00
TOTALS	-	+3.62

AFY: Acre-Feet per year.

4.0 WELL INTERFERENCE

Tier 2, outlined in the *WAA Guidance document* and the *Well Permit Standards – Applicable Tables*, requires that a well interference evaluation be conducted for a new or

existing groundwater well, constructed less than 500 feet to a nearby well. The existing well (No. e0173012) on the project site is constructed less than 500 feet to a nearby well. Therefore, the following Tier 2 evaluation to assess the potential drawdown in the existing nearby well(s) is described below in the following sections.

4.1 Drawdown Characteristics

One on-site well exists on the project site. However, no data exists to conduct an empirical distance-drawdown analysis which would require a pumping test with observation well data.

The nearest well (No. 796960) to the existing on-site well (No. e0173012) is approximately 150 feet away and will be used for the Tier 2 analyses.

4.2 Daily Water Demand

In accordance with the estimates outlined in NorCal Civil Engineering, Inc.'s *Wastewater Feasibility Study* (Appendix D) and the landscape irrigation water demand estimate provided by the Client, the maximum daily water demand for the proposed project is 2,410 GPD.

4.3 Pumping Rate and Duration

As presented above, the daily water demand is approximately 2,410 GPD. Whereas the demand would likely occur intermittently throughout the day, the total volume was assumed to be pumped at one time as a conservative measure.

The pumping duration required to meet the maximum daily water demand was estimated based on the 30 GPM yield from the existing on-site groundwater well (No. e0173012), at the time of well completion. It should be noted that this 30 GPM yield estimate is consistent with the average corrected yield (21 GPM) from the WCRs of water supply wells located in close proximity to the project site. According to these WCRs, the majority of these wells appear to be completed in similar lithology as the existing on-site well.

At an average pumping rate of 30 GPM, approximately 80 minutes of pumping is required to reach the maximum daily water demand. Based on known drawdown and recharge characteristics of wells in the vicinity of the project site, it is likely that the existing well will be solely capable of providing water supply for the proposed project.

4.4 Aquifer Transmissivity

Determination of aquifer transmissivity was accomplished using available data from the WCRs of water supply wells screened in lithology (Alluvium, Huichica, and Great Valley Sequence) the existing on-site well is completed in. The average corrected yield (21 GPM) and average drawdown (166 feet) calculated from data recorded in the WCRs was

used in an empirical transmissivity equation published in the *Groundwater and Wells* (Driscoll, 1986). The method used to calculate transmissivity is presented below:

$$\frac{Q}{s} = \frac{T}{1500}$$

for an unconfined aquifer, where “Q” is discharge rate (GPM), “s” is feet of drawdown in the well, and “T” is transmissivity (gallons per day per foot [GPD/ft]). Please note that an 80 percent multiplier was applied to the yield data to account for well inefficiency (assumed). The corresponding results from the calculation indicated a transmissivity value of 190 GPD/ft (25 square feet per day [ft²/day]).

Based on the method used above, aquifer transmissivity estimated from water supply wells in the vicinity of the project site (screened in Great Valley Sequence) is approximately 190 GPD/ft.

4.5 Well Interference Characteristics

The evaluation of well interference was conducted utilizing a distance-drawdown analytical computer model. Given a discharge rate and estimates of aquifer characteristics, the analytical model predicts groundwater drawdown as a function of distance from a pumping well. For this study, the classic nonequilibrium equation of Theis (1935) and the modified nonequilibrium equation of Jacob (1946) were used as the basis of our analysis.

Aquifer characteristics for the model were based on WCR data and literature values. As discussed previously in *Section 4.4*, the aquifer transmissivity was calculated using available data from the WCRs and an empirical transmissivity equation. A range of aquifer storage coefficient values for the model were based on representative specific yield values (Sandstone: Great Valley formation [0.05 - 0.15] - Shale: Great Valley formation [0.005 - 0.05]) provided on Table F-2 in Appendix F of the Napa County *WAA document*.

The following input parameters were used in the analytical model:

- *Pumping Rate:* 30 GPM
- *Aquifer Transmissivity:* 190 GPD/ft
- *Aquifer Storage Coefficient:* Range: 0.005 to 0.15
- *Pumping Duration:* 80 minutes

EBA conducted the distance-drawdown analytical computer model utilizing the range provided above for aquifer storage coefficient and the aquifer transmissivity. Model results, using the aforementioned storage coefficient value of 0.005 from the Napa County WAA and a transmissivity value of 190 GPD/ft, provided the most conservative model. It should be noted that the most conservative model, given the assumptions noted above, provided the result that would induce the largest drawdown in the well farthest from the existing on-site well. Based on these aquifer characteristics and the pumping duration

(80 minutes) required to meet the project sites maximum daily water demand, the analytical computer model predicts approximately 10 feet of drawdown at a distance of 24 feet, with less than one foot of drawdown at 48 feet.

According to the *WAA Guidance document* any neighboring well(s) (≤ 6 -inch diameter casing) within 500 feet of a new or existing groundwater well, screened within the same aquifer as the new or existing well, must have an estimated drawdown of 10 feet or less. As predicted by the distance-drawdown model presented above, the existing well on the project site must be located greater than approximately 24 feet from any nearby groundwater well(s) to be in conformance with Napa County Guidelines (≤ 10 feet of drawdown). Thus, the existing on-site well is greater than the 24-foot distance to a nearby well and is therefore in conformance with Napa County Guidelines. Please note that the above calculations assume 95% recovery within the pumping well before beginning the next pumping cycle.

5.0 SURFACE WATER DEPLETION FROM GROUNDWATER PRODUCTION

Tier 3, outlined in the *WAA Guidance document* and the *Well Permit Standards – Applicability Tables*, requires that a groundwater/surface water interaction evaluation be conducted for new or existing wells, located within 1,500 feet of a mapped Significant Stream(s). As previously mentioned, a mapped Significant Stream, Carneros Creek, is located approximately 435 feet to the west of the existing on-site groundwater well.

According to the *WAA Guidance document*, “streamflow depletion will be calculated using industry standard methods appropriate to the aquifer under consideration; such methods include the Hantush Equation applicable for aquifers hydraulically connected with surface waters (Hantush, 1965).” EBA used the web-based United States Geological Survey (USGS) STRMDEPL08 tool, with the Hantush equation described therein, to characterize streamflow depletion from a nearby pumping well (USGS, 2022). Please refer to *Section 4.0* above for a description of the calculations for the model parameter values, storage coefficient and transmissivity.

The following assumed parameter values were input into the model:

- Distance between the existing on-site groundwater well and Carneros Creek (435 feet);
- Transmissivity value of 190 GPD/ft ($25 \text{ ft}^2/\text{day}$);
- Storage coefficient values ranging from 0.005 to 0.15;
- Streambed Leakance value of 100 feet;
- A pumping rate of 30 GPM per the existing on-site well; and
- A pumping duration of 1 day.

EBA utilized the same aquifer transmissivity ($25 \text{ ft}^2/\text{day}$) and aquifer storage coefficient (0.005) values in the streamflow depletion model that resulted in the most conservative

well interference model outlined in *Section 4.0*. The results of the streamflow depletion model for the existing on-site well indicate a stream depletion rate of approximately 0.0000 cubic foot per second. Given the lack of modeled streamflow depletion in Carneros Creek, it is EBA's opinion that pumping from the existing on-site well would not contribute to significant and unreasonable stream depletion in Carneros Creek. It should be noted that this model assumes direct connection between the aquifer and the streambed, which may not be the case at this location.

Please note that the elevation of the Carneros Creek, as measured perpendicular to the existing on-site well, is approximately 94 feet above MSL, based on publicly available elevation data. The elevation of the well head of the on-site well is approximately 120 feet above MSL, which is approximately 26 feet greater in elevation than Carneros Creek. According to the well log (No. e0173012) for the project site well, the reported DTW at the time of well completion was approximately 191 feet BGS. Therefore, the reported static water level in the well at the time of completion in March 2013 was at an elevation of approximately 71 feet below MSL, which suggests that surface water flow in the Carneros Creek is recharging groundwater as opposed to groundwater discharging into Carneros Creek. It should be noted that the existing wells (No. 796960 and 284930) located proximal to Carneros Creek exhibit similar groundwater elevations as those observed in the on-site well. With this being said, the location of the project site well suggests that hydraulic connectivity between the on-site well and the Carneros Creek is low, and the water that will be pumped from the existing on-site well is different than what is in Carneros Creek.

6.0 CONCLUSIONS

The results of the WAA have indicated that:

- According to the water recharge analyses conducted herein, the amount of water available for recharge over the project site area, during average precipitation years, was calculated to be 3.62 AFY. Based on the estimated groundwater demand of 2.70 AFY, this total groundwater use equates to approximately 75 percent of the water available for recharge in the area of the project site during average precipitation years.
- Based on the analysis and assumptions presented herein, it does not appear that pumping in the existing on-site well, will be able to substantially influence any existing neighboring wells. As predicted by the distance-drawdown model presented herein, the existing well on the project site must be located greater than approximately 24 feet from any nearby groundwater well(s) to be in conformance with Napa County Guidelines (≤ 10 feet of drawdown).
- With regards to the effects of groundwater pumping at the project site on flow of water in Carneros Creek, significant or measurable surface water depletion as a

result of on-site groundwater extraction is not expected from the existing on-site well.

Based on the results of this evaluation, it is EBA's professional opinion that the Tier 1, 2, and 3 analysis is in conformance with the requirements outlined in the Well Permit Standards – Applicable Tables and Napa County *WAA Guidance Document*.

7.0 LIMITATIONS

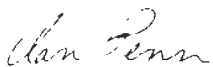
This report was prepared in accordance with generally accepted standards of professional hydrogeologic and engineering principles and practices at the place and time this study was performed. This warranty is in lieu of all other warranties, either expressed or implied. The conclusions presented herein are based solely on information made available to us by others, and includes professional interpretations based on limited research and data. Based on these circumstances, the decision to conduct additional investigative work to substantiate the findings and conclusions presented herein is the sole responsibility of the Client. No guarantee is made that groundwater of sufficient quantity or quality will be found in any specific depth or interval nor that pumping will not affect quality nor quantity of water found and/or subsidence. This report has been prepared solely for the Client and any reliance on this report by third parties shall be at such party's sole risk.

8.0 CLOSING

EBA appreciates the opportunity to be of service on this project. If you should have any questions regarding the information contained herein, please do not hesitate to contact our office at (707) 544-0784.

Sincerely,
EBA ENGINEERING

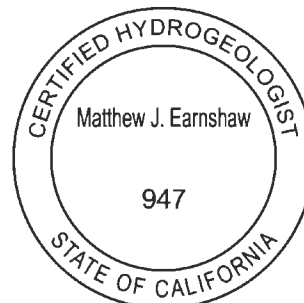
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Reviewed by

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Vice President – Senior Hydrogeologist



Appendices: Appendix A: Figures
Appendix B: On-Site Well – Water Well Completion Report
Appendix C: Off-Site Wells – Water Well Completion Reports
Appendix D: Existing and Proposed Water Use

9.0 REFERENCES

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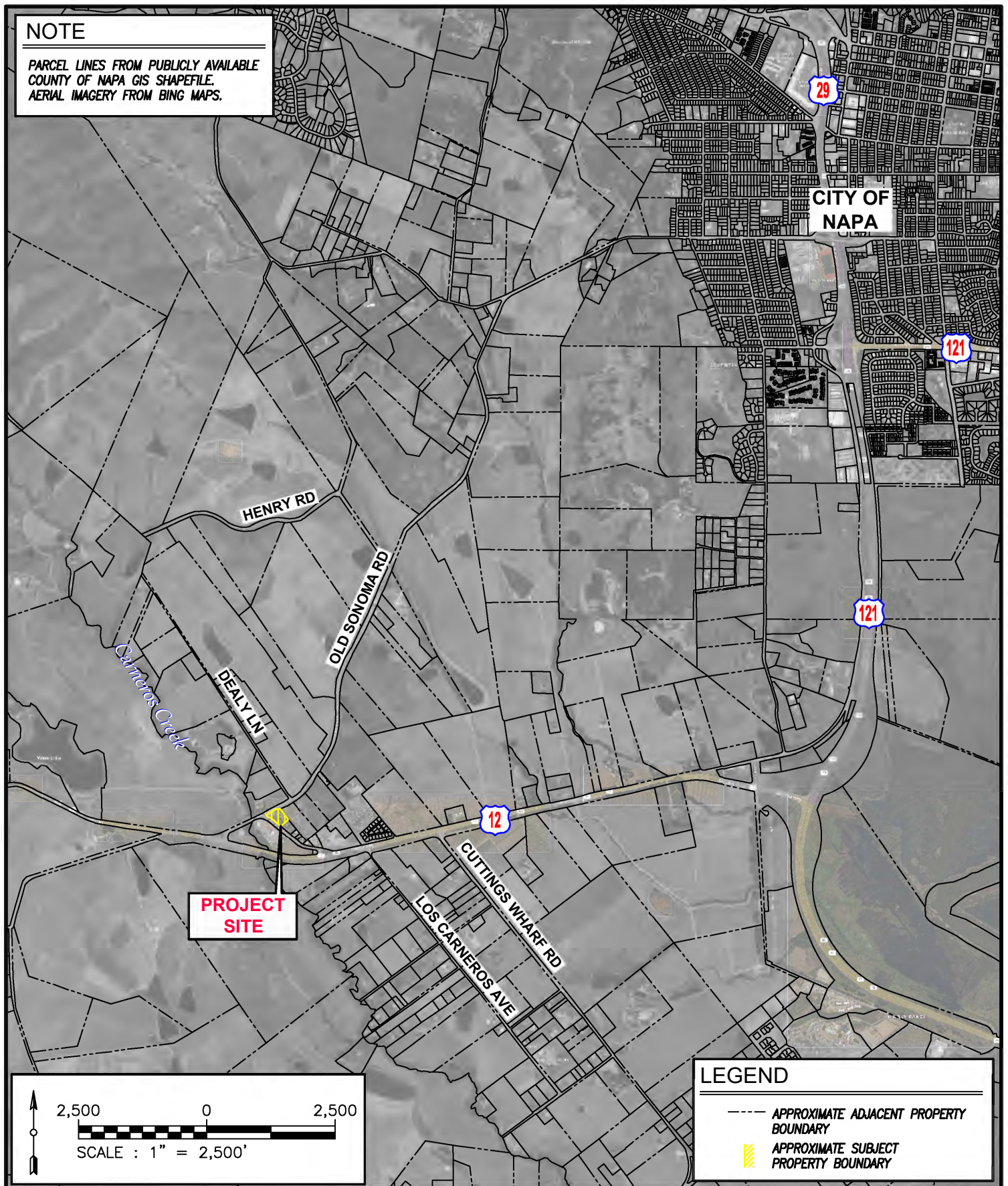
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APPENDIX A

FIGURES

NOTE

PARCEL LINES FROM PUBLICLY AVAILABLE
COUNTY OF NAPA GIS SHAPEFILE.
AERIAL IMAGERY FROM BING MAPS.



LOCATION MAP

4370 OLD SONOMA HWY
NAPA, CA 94559
APN: 047-110-017-000

FIGURE

1

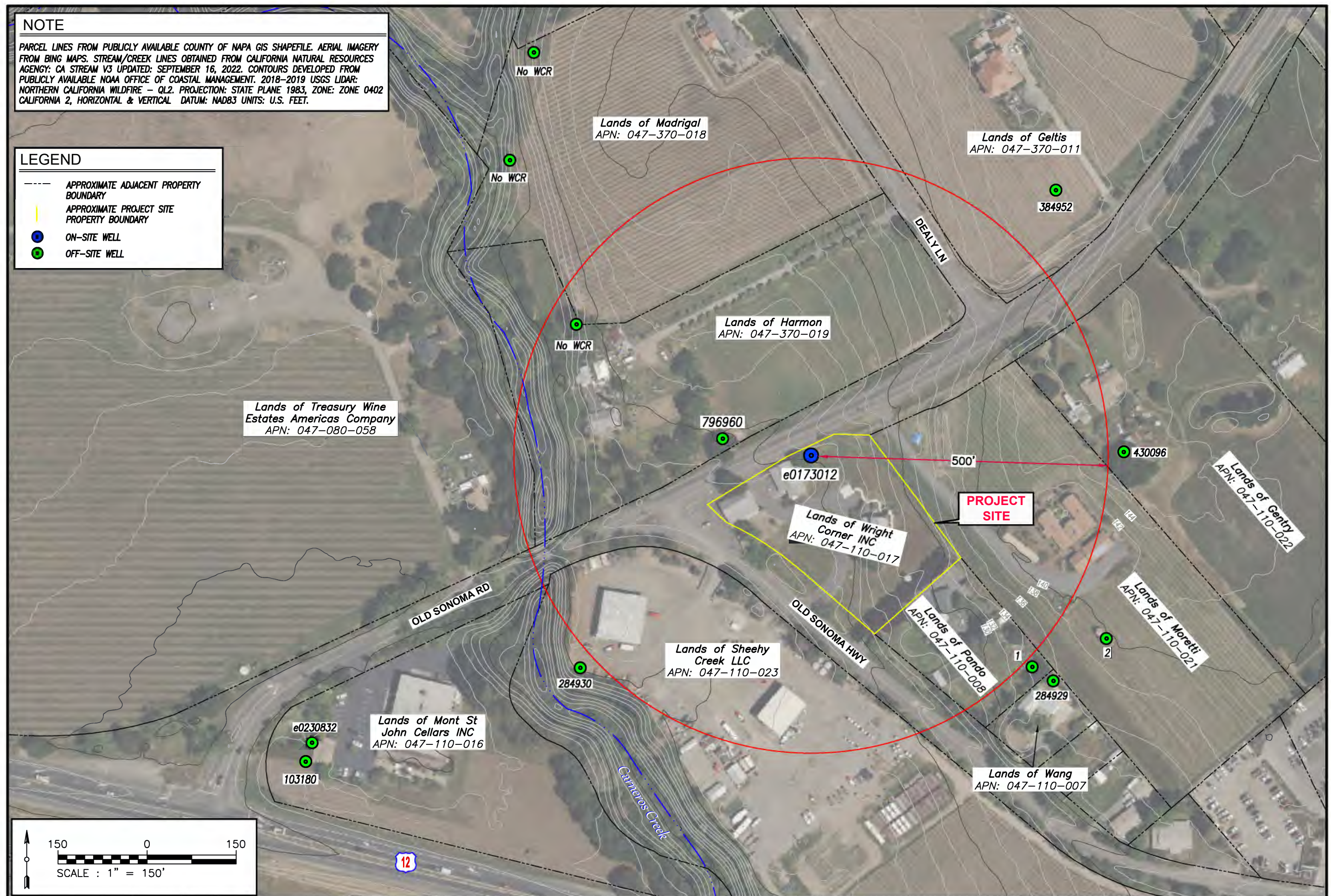
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NOTE

PARCEL LINES FROM PUBLICLY AVAILABLE COUNTY OF NAPA GIS SHAPEFILE. AERIAL IMAGERY FROM BING MAPS. STREAM/CREEK LINES OBTAINED FROM CALIFORNIA NATURAL RESOURCES AGENCY: CA STREAM V3 UPDATED: SEPTEMBER 16, 2022. CONTOURS DEVELOPED FROM PUBLICLY AVAILABLE NOAA OFFICE OF COASTAL MANAGEMENT. 2018-2019 USGS LIDAR: NORTHERN CALIFORNIA WILDFIRE - QL2. PROJECTION: STATE PLANE 1983, ZONE: ZONE 0402 CALIFORNIA 2, HORIZONTAL & VERTICAL DATUM: NAD83 UNITS: U.S. FEET.

LEGEND

- APPROXIMATE ADJACENT PROPERTY BOUNDARY
- APPROXIMATE PROJECT SITE PROPERTY BOUNDARY
- ON-SITE WELL
- OFF-SITE WELL



FIGURE

2

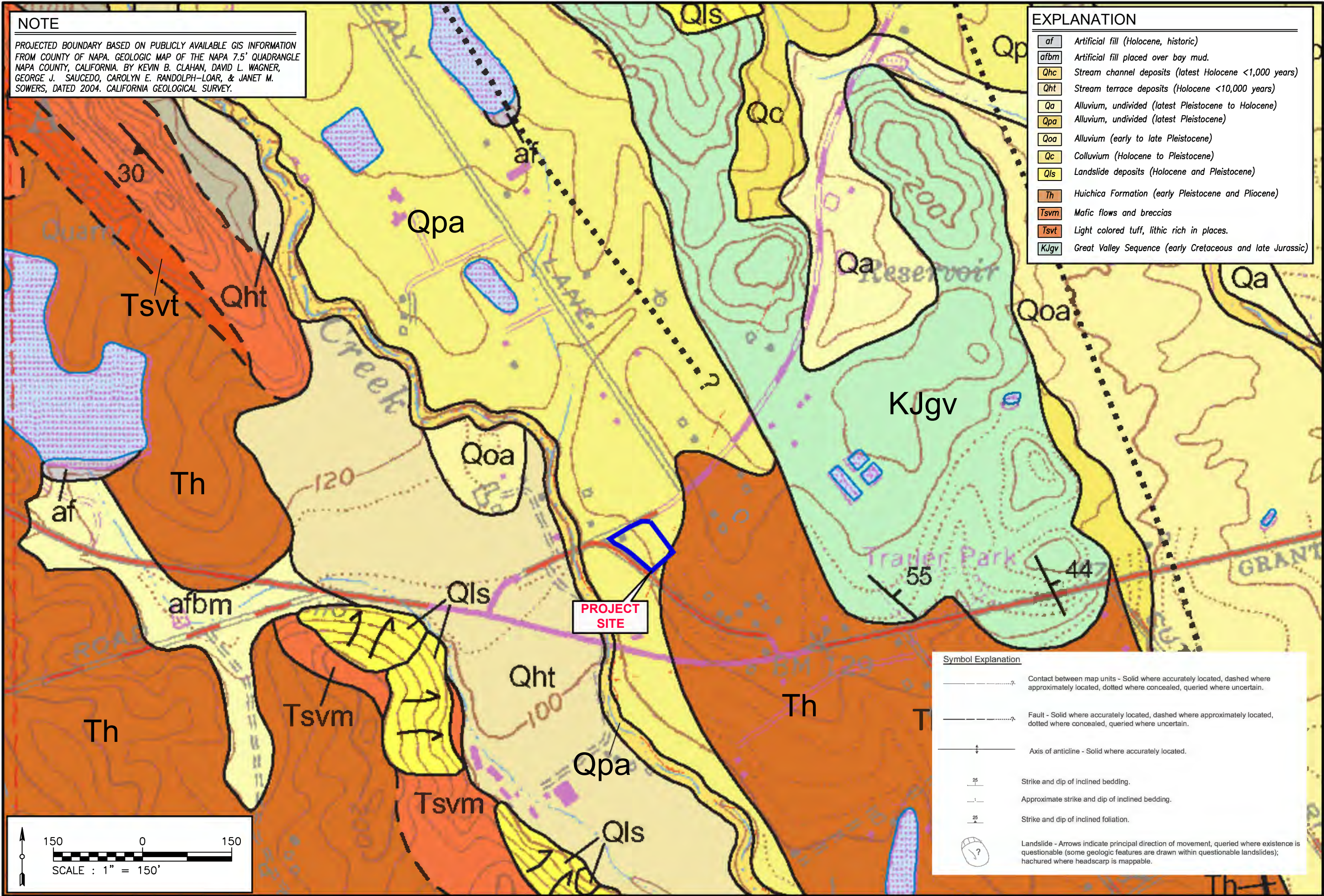
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WELL INTERFERENCE MAP

4370 OLD SONOMA HWY
NAPA, CA 94559
APN: 047-110-017-000



825 SONOMA AVENUE
SUITE C
SANTA ROSA, CA 95404
TEL: (707) 544-0784



APPENDIX B

ON-SITE WELL

WATER WELL COMPLETION REPORT

E12-00745 well ul

From: Kerry Smith <thewrightcorner@earthlink.net>
 Subject:
 Date: April 21, 2015 9:58:47 AM PDT
 1 Attachment, 8.9 MB

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. **e0173012**

Page 1 of 1

Owner's Well Number 1

Date Work Began 02/27/2013

Date Work Ended 3/8/2013

Local Permit Agency Napa County E.M.

Permit Number E12-00745

Permit Date 11/29/12

DWR Use Only - Do Not Fill In			
State Well Number/Well Number			
Latitude		Longitude	
APN/Trs/Other			

Geologic Log		
Orientation <input checked="" type="radio"/> Vertical <input type="radio"/> Horizontal <input type="radio"/> Angle Specity _____		
Drilling Method Direct Rotary Drilling Fluid Bentonite mud		
Depth from Surface Feet to Feet	Description Describe material, grain size, color, etc	
0	10	Top Soil
10	15	Rock/Gravel
15	30	Clay
30	35	Rock/Gravel
35	80	Hard Clay
80	90	Rock/Clay
90	110	Hard Clay
110	120	Rock/Clay
120	350	Hard Clay
350	480	Hard Shale
480	490	Green Sandstone
490	550	Green Sandstone with some Clay
550	590	Yellow Sandstone/Rock
590	610	Clay/Sandstone
Total Depth of Boring <u>610</u> Feet		
Total Depth of Completed Well <u>610</u> Feet		

Well Owner	
Name <u>Wright Corner Inc</u>	
Mailing Address <u>4370 Old Sonoma Rd.</u>	
City <u>Napa</u>	State <u>CA</u> Zip <u>94559</u>
Well Location	
Address <u>4370 Old Sonoma Rd.</u>	
City <u>Napa</u>	County <u>Napa</u>
Latitude <u>38° 14' 00" N</u>	Longitude <u>122° 21' 00" W</u>
Datum <u>North</u>	Decimal Lat. <u>38.2333</u> Decimal Long. <u>-122.3500</u>
APN Book <u>047</u>	Page <u>110</u> Parcel <u>017</u>
Township <u>38N</u>	Range <u>12E</u> Section <u>17</u>
Location Sketch	
(Sketch must be drawn by hand after form is printed.)	
(Illustrate or describe distance of well from each building, fence, well, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.)	
Activity	
<input checked="" type="radio"/> New Well <input type="radio"/> Modification/Repair <input type="radio"/> Deepen <input type="radio"/> Other <input type="radio"/> Destroy Describe procedures and water use under "GEOLOGIC LOG"	
Planned Uses	
<input checked="" type="radio"/> Water Supply <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Public <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="radio"/> Cathodic Protection <input type="radio"/> Dewatering <input type="radio"/> Heat Exchange <input type="radio"/> Injection <input type="radio"/> Monitoring <input type="radio"/> Remediation <input type="radio"/> Sparging <input type="radio"/> Test Well <input type="radio"/> Vapor Extraction <input type="radio"/> Other	
Water Level and Yield of Completed Well	
Depth to first water <u>30</u> (Feet below surface)	
Depth to Static _____	
Water Level <u>191</u> (Feet)	Date Measured <u>03/08/2013</u>
Estimated Yield * <u>30</u> (GPM)	Test Type <u>Air Lift</u>
Test Length <u>2.0</u> (Hours)	Total Drawdown <u>610</u> (Feet)
*May not be representative of a well's long term yield.	

Casings								Annular Material			
Depth from Surface Feet to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size If Any (Inches)	Depth from Surface Feet to Feet	Fill Description		
0	50	11 3/4	Blank	PVC Sch. 40	.25	5		0	50	Bentonite	Pumped bottom up
50	510	8 3/4	Blank	PVC Sch. 40	.25	5		50	610	Fill	Pea Gravel
510	610	8 3/4	Screen	PVC Sch. 40	.25	5	Milled Slots				

Attachments		Certification Statement	
<input type="checkbox"/> Geologic Log <input type="checkbox"/> Well Construction Diagram <input type="checkbox"/> Geophysical Log(s) <input type="checkbox"/> Soil/Water Chemical Analysis <input type="checkbox"/> Other		I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief. Name <u>Dave Bess</u> Person, Firm or Corporation <u>Napa</u> State <u>CA</u> Zip <u>94558</u> Address <u>1115 Mt. George Ave.</u> City <u>Napa</u> State <u>CA</u> Zip <u>94558</u> Signed _____ Date Signed <u>487027</u> C-57 Licensed Water Well Contractor C-57 License Number	

DWR 188 REV 12/008

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

RECEIVED

SEP 12 2018

Napa County Planning, Building & Environmental Services

APPENDIX C

OFF-SITE WELLS

WATER WELL COMPLETION REPORTS

FEE 79⁰⁰ DATE 4/21/87
 RECEIPT NO. 19535 BY EW

 NAPA COUNTY HEALTH DEPARTMENT
 DIVISION OF ENVIRONMENTAL HEALTH

APPLICATION & PERMIT TO CONSTRUCT A WATER WELL

NAME [Redacted] ADDRESS [Redacted]
 (Owner) (Job Location)

NAME Bill Pullman ADDRESS _____ DATE 4-21-87
 (Well Driller)

TYPE OF WORK
 NEW WELL X RECONDITIONING _____ DEEPENING _____
 TYPE I PERMIT _____ DESTROY _____ OTHER _____
 TYPE II PERMIT _____ TEST HOLE _____

PROPOSED USE
 DOMESTIC X IRRIGATION _____ INDUSTRIAL _____ MUNICIPAL _____
 TEST WELL _____ OTHER _____ HOT WATER _____

Sewage Disposal on site (existing or proposed) Public _____ Individual X Private _____
 Distance from well to any part of nearest sewage disposal system 100+ feet.
 (Sketch of site to accompany application) County road setback 82 feet from centerline.

TYPE OF EQUIPMENT TO BE USED: Rotary X Cable _____ Hand Dug _____ Other _____

WORKER'S COMPENSATION COVERAGE: (Check one of the following)

☐ A certificate of current Worker's Compensation Insurance coverage is presently on file with this office.

☐ A certificate of current Worker's Compensation Insurance is being filed with this application.

☒ I certify that in the performance of the work for which this permit is issued I shall not employ any person in any manner so as to become subject to the Worker's Compensation laws in California.

Bill Pullman
 Signature of Applicant

4-21-87
 Date

CASING

CONSTRUCTION:

Total Depth 180 Ft. Depth of Casing 180Surface Seal to 22 Ft.Any Stratas Sealed: Yes _____ No X

If yes, depth of stratas: _____

From _____ Ft. to _____ Ft./From _____ Ft. to Orange

Perforations:

From 150 Ft. to _____ Ft./From 50 Ft. to 180 Ft.

From _____ Ft. to _____ Ft.

WATER LEVELS

First Water at 50 Ft. Static level at 30 Ft.

WELL TESTS

How performed BasYield 20 GPM with 80 Ft. Drawdown after 2Hrs. Annular space depth 22 Ft./Thickness2 in. Diameter of casing 5 Material PlasticGravel Pack: Yes X No _____ Conductor Casing:Yes _____ No X Sealed with: Concrete X

Grout _____ Neat Cement _____ Pudd. Clay _____

Other _____ Chlorination by: Owner X

Pump Co. _____ Driller _____

WELL LOG

(Formation; described by color, size of material, structure)

Ft.	to	Ft.
0-5'	clay	
5-10'	clay, gravel	
10-30'	clay	
30-50'	green clay	
50-75'	green ash, gravel	
75-85'	green clay	
85-170'	green ash, streaks of	
	broken up sandstone	
170-180'	green clay	

 CONTRACTOR'S STATEMENT: I, Bill Pullman, contractor for the above work, hereby certify that the above was installed according to all applicable rules and regulations covered by this permit, and that the information is true and correct to the best of my knowledge.

 RECEIVED
 MAY 13 1987

 11-30
 11-Office

Return to Office

Pink-Owner

Orange-Contractor

Bill Pullman
 Contractor's Signature

 DIVISION OF
 ENVIRONMENTAL HEALTH

QUADRUPLICATE
For Local Requirements

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

Page of
Owner's Well No. No. **796960**
Date Work Began 7-22-04, Ended 7-29-04
Local Permit Agency NAPA
Permit No. E04-0144 Permit Date 7-08-04

GEOLOGIC LOG

ORIENTATION () ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE ☐ (SPECIFY)

DEPTH FROM SURFACE
FL. to FL.

DRILLING METHOD ROTARY FLUID AIR

DESCRIPTION
Describe material, grain size, color, etc.

0	8	BROWN CLAY
8	9	GRAVEL
9	75	BROWN CLAY
75	85	GRAY WITH BROWN CLAY
85	150	YELLOW CLAY
150	390	GRAY GREEN SANDSTONE & GRAY CLAY
390	460	GREEN SANDSTONE
460	510	GRAY SANDSTONE
510	550	GRAY SHALE & GRAY SANDSTONE

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AUG 03 2004
DEPT. OF ENVIRONMENTAL MANAGEMENT

TOTAL DEPTH OF BORING 550 (Feet)
TOTAL DEPTH OF COMPLETED WELL 500 (Feet)

WELL OWNER

Name
Mailing Address
CITY STATE ZIP

WELL LOCATION

Address 1003 Dealy Lane
City NAPA
County NAPA
APN Book 047 Page 370 Parcel 019
Township Range Section
Latitude NORTH WEST
Longitude DEG. MIN. SEC. DEG. MIN. SEC.

LOCATION SKETCH

WEST EAST

Dealy Lane

300' 40'

WELL

ONE SONOMA RD.

ACTIVITY ()

☒ NEW WELL
☐ MODIFICATION/REPAIR
 Deepen
 Other (Specify)

☐ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES ()

WATER SUPPLY
☒ Domestic ☐ Public
☐ Irrigation ☐ Industrial

MONITORING
TEST WELL
CATHODIC PROTECTION
HEAT EXCHANGE
DIRECT PUSH
INJECTION
VAPOR EXTRACTION
SPARGING
REMEDIATION
OTHER (SPECIFY)

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 414 (FL) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 200 (FL) & DATE MEASURED 7-29-04

ESTIMATED YIELD 35 (GPM) & TEST TYPE Air Lift

TEST LENGTH 5 (Hrs.) TOTAL DRAWDOWN 300 (FL.)

* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE FL. to FL.	BORE-HOLE DIA. (Inches)	CASING (S)					
		TYPE ()				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)
		BLANK	SCREEN	CONDUCTOR	FILL PIPE		
0	53	11	✓			Flute	5
53	200	8	✓				
200	500	8	✓				

DEPTH FROM SURFACE FL. to FL.	ANNULAR MATERIAL			
	TYPE			
	CE- MENT ()	BEN- TONITE ()	FILL ()	FILTER PACK (TYPE/SIZE)
0	53	✓	✓	
53	500			Perforated

ATTACHMENTS ()

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME William Well Exploration
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS 5110 Hwy. 128 CITY NAPA STATE CA ZIP 94556

Signed William Well DATE SIGNED 8-1-04
WELL DRILLER/AUTHORIZED REPRESENTATIVE C-57 LICENSE NUMBER 206508

47-110-023

047-110-023

well
WL

Do not fill in

DUPLICATE
to comply with
all requirements

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
WATER WELL DRILLERS REPORT

No. 284930

Notice of Intent No. _____

Local Permit No. or Date 23709

47-110-13

State Well No. _____

Other Well No. _____

(1) OWNER: Name [redacted]Address [redacted]City [redacted] ZIP [redacted]

(2) LOCATION OF WELL (See instructions):

County Napa Owner's Well Number _____

Well address if different from above _____

Township 47 Range 110 Section 13

Distance from cities, roads, railroads, fences, etc. _____

(12) WELL LOG: Total depth 410 ft. Completed depth 440 ft.

from ft. to ft. Formation (Describe by color, character, size or material)

0 - 27.5' yellow clay27.5 - 320' broken up sand -stone320 - 400' clay streaks ofsand stone400 - 440' clay440 - 440' clay

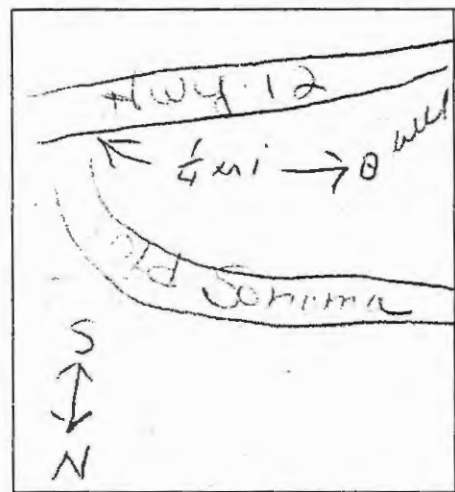
(3) TYPE OF WORK:

New Well ☒ Deepening ☐Reconstruction ☐Reconditioning ☐Horizontal Well ☐Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:

Domestic ☐Irrigation ☒Industrial ☐Test Well ☐Municipal ☐Other ☐

(Describe)



WELL LOCATION SKETCH

(5) EQUIPMENT:

Rotary ☒ Reverse ☐Cable ☐ Air ☐Other ☐ Bucket ☐

(6) GRAVEL PACK:

Yes ☒ No ☐ Size 20-40Diameter of bore 9"Packed from 25' to 440'

(7) CASING INSTALLED:

Steel ☐ Plastic ☒ Concrete ☐

(8) PERFORATIONS:

Type of perforation or size of screen

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
0	440	5	160	90	440	5x3

(9) WELL SEAL:

Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 25' ft.Were strata sealed against pollution? Yes ☐ No ☒ Interval _____ ft.Method of sealing Cement

(10) WATER LEVELS:

Depth of first water, if known _____ ft.

Standing level after well completion 100' ft.

(11) WELL TESTS:

Was well test made? Yes ☒ No ☐ If yes, by whom? DrillerType of test Pump ☐ Bailer ☐ Air lift ☒Depth to water at start of test 100' ft. At end of test 740' ft.Discharge 40 gal/min after 4 hours Water temperature _____Chemical analysis made? Yes ☐ No ☒ If yes, by whom? _____Was electric log made? Yes ☐ No ☒ If yes, attach copy to this reportWork started 3-31-89 Completed 4-12-89

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signed Paul Pullen (Well Driller)NAME Pullen Well Drilling

(Person, firm, or corporation) (Typed or printed)

Address 3877 Piedmont AveCity Napa ZIP 94558License No. 148677 Date of this report 4-17-89

125634
FEE 222 DATE 1/13/87
RECEIPT NO. 2008 BY enl

Well Log # 2

well WL
A.P. NO. 047-110-021

NAPA COUNTY HEALTH DEPARTMENT
DIVISION OF ENVIRONMENTAL HEALTH

APPLICATION & PERMIT TO CONSTRUCT A WATER WELL

NAME [Redacted] ADDRESS 5350 Old Songma rd. Napa
(Owner) (Job Location)
NAME Pulliam Drilling ADDRESS 2877 Piedmont DATE 9-3-87
(Well Driller)

TYPE OF WORK NEW WELL X RECONDITIONING DEEPENING
TYPE I PERMIT X DESTROY OTHER
TYPE II PERMIT TEST HOLE

PROPOSED USE DOMESTIC X IRRIGATION INDUSTRIAL MUNICIPAL
TEST WELL OTHER HOT WATER

Sewage Disposal on site (existing or proposed) Public Individual X NONE Private
Distance from well to any part of nearest sewage disposal system 300+ feet.
(Sketch of site to accompany application) County road setback 48 feet from centerline.

TYPE OF EQUIPMENT TO BE USED: Rotary X Cable Hand Dug Other

WORKER'S COMPENSATION COVERAGE: (Check one of the following)

- ☐ A certificate of current Worker's Compensation Insurance coverage is presently on file with this office.
☐ A certificate of current Worker's Compensation Insurance is being filed with this application.
☒ I certify that in the performance of the work for which this permit is issued I shall not employ any person in any manner so as to become subject to the Worker's Compensation laws in California.

Bill Pulliam

Signature of Applicant

9-3-87

Date

CASING

CONSTRUCTION:

Total Depth 180 Ft. Depth of Casing 180

Surface Seal to 23 Ft.

Any Stratas Sealed: Yes No X

If yes, depth of stratas: 12/51 R. Draper

From Ft. to Ft./From Ft. to Ft.

Perforations:

From 60 Ft. to 180 Ft./From Ft. to Ft.

From Ft. to Ft.

WATER LEVELS

First Water at 60 Ft. Static level at 570 Ft.

WELL TESTS

How performed Bail

Yield 15 GPM with 160 Ft. Drawdown after 2

Hrs. Annular space depth 23 Ft./Thickness

2 in. Diameter of casing 5" Material PLASTIC

Gravel Pack: Yes X No Conductor Casing:

Yes No X Sealed with: Concrete X

Grout Neat Cement Pudd. Clay

Other Chlorination by: Owner X

Pump Co. Driller

WELL LOG

(Formation; described by color, size of material, structure)

Ft.	to	Ft.
0-5'		clay
5-10'		clay & gravel
10-30'		clay
30-60'		green clay
60-90'		green clay & gravel
90-160'		deep ash, streaks of broken up sandstone
160-180'		green clay

RECEIVED

JAN 15 1988

DIVISION OF

ENVIRONMENTAL HEALTH

CONTRACTOR'S STATEMENT: I, Bill Pulliam, contractor for the above work, hereby certify that the above was installed according to all applicable rules and regulations covered by this permit, and that the information is true and correct to the best of my knowledge.

10-30
10-Office

Pink-Owner

10-Return to Office

Orange-Contractor

Bill Pulliam
Contractor's Signature

ORIGINAL

File with DWR

Page 1 of 1Owner's Well No. 1Date Work Began 8/1/91, Ended 8/6/91Local Permit Agency Napa Co Environmental HealthPermit No. EH 029088 Permit Date 7/31/91STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction PamphletNo. 430096

DWR USE ONLY - DO NOT FILL IN

STATE WELL NO./STATION NO. WL

LATITUDE _____ LONGITUDE _____

APN/TRS/OTHER _____

GEOLOGIC LOG

WELL OWNER 047-110-022ORIENTATION (✓) ☒ VERTICAL ☐ HORIZONTAL ☐ ANGLE _____ (SPECIFY)

DEPTH TO FIRST WATER _____ (Ft.) BELOW SURFACE

DESCRIPTION

Describe material, grain size, color, etc.

DEPTH FROM SURFACE

Ft. to Ft.

0	45	8" Casing
45	50	Gravel
50	75	Clay
75	77	Sand & Gravel
77	140	Hard Clay
140	141	White Sand
141	160	Clay
160	162	Sand & Gravel
162	166	Hard Clay
166	200	Shale

Name 5283 Old Sonoma RdMailing Address 5283 Old Sonoma RdCity Napa State CA ZIP 94558

WELL LOCATION

Address 5283 Old Sonoma RdCity Napa

County _____

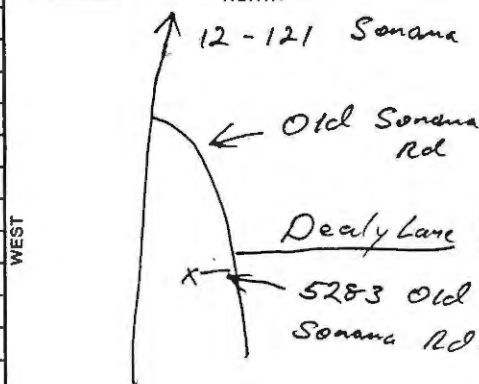
APN Book 47 Page 110 Parcel 22

Township _____ Range _____ Section _____

Latitude _____ Longitude _____

LOCATION SKETCH

NORTH



ACTIVITY (✓)

☐ NEW WELL☒ MODIFICATION/REPAIR☒ Deepen☐ Other (Specify) _____☐ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USE(S)

☐ MONITORING

WATER SUPPLY

☒ Domestic☐ Public☐ Irrigation☐ Industrial☐ "TEST WELL"☐ CATHODIC PROTECTION☐ OTHER (Specify) _____

SOUTH

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc. PLEASE BE ACCURATE & COMPLETE.

DRILLING METHOD Rotary

FLUID

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL 50' (Ft.) & DATE MEASURED 8/20/91ESTIMATED YIELD 4 (GPM) & TEST TYPE 2 PumpTEST LENGTH 14 (Hrs.) TOTAL DRAWDOWN 160 (Ft.)

* May not be representative of a well's long-term yield.

TOTAL DEPTH OF BORING 208 (Feet)TOTAL DEPTH OF COMPLETED WELL 200 (Feet)

DEPTH FROM SURFACE			BORE-HOLE DIA. (Inches)	CASING(S)					DEPTH FROM SURFACE			ANNULAR MATERIAL			
				TYPE (✓)				MATERIAL / GRADE				INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	TYPE
Ft.	to	Ft.		BLANK	SCREEN	CON- DUCTOR	FILL PIPE		CE- MENT (✓)	BEN- TONITE (✓)	FILL (✓)				FILTER PACK (TYPE / SIZE)
0	40		8 3/4	✓				PVC	5"	200					
40	200		8 3/4	✓				PVC	5"	200	.020"		✓	3/8 Pea Gravel	

ATTACHMENTS (✓)

- ☐ Geologic Log
- ☐ Well Construction Diagram
- ☐ Geophysical Log(s)
- ☐ Soil / Water Chemical Analyses
- ☐ Other _____

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME D. Bess Pump & Well

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS 1115 MT George Ave CITY Napa STATE CA ZIP 94558Signed Dan Bess WELL DRILLER/AUTHORIZED REPRESENTATIVEDATE SIGNED 8/22/91 C-57 LICENSE NUMBER 487023

QUADRUPLICATE
Use to comply with
local requirements

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
WATER WELL DRILLERS REPORT

8/1/89
#1629
No. 284929

Do not fill in

Notice of Intent No. _____
Local Permit No. or Date _____

47-110-07

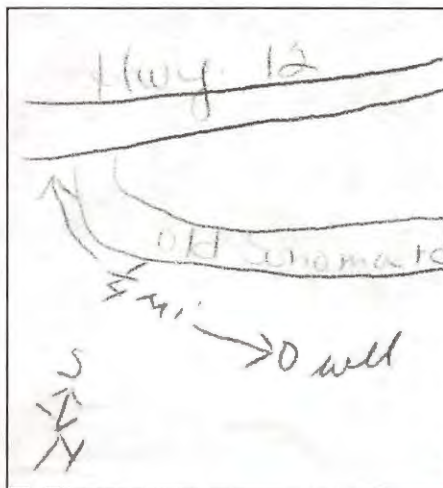
State Well No. _____
Other Well No. _____

(1) OWNER: Name _____
Address _____
City _____ ZIP _____

(2) LOCATION OF WELL (See instructions):
County _____ Owner's Well Number _____

Well address if different from above _____
Township _____ Range _____ Section _____

Distance from cities, roads, railroads, fences, etc. 24 mi. North
West of Hwy 12 on Old
Sanoma rd



(3) TYPE OF WORK:
New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe
destruction materials and pro-
cedures in Item 12)

(4) PROPOSED USE:
Domestic ☒
Irrigation ☐
Industrial ☐
Test Well ☐
Municipal ☐
Other ☐
(Describe)

WELL LOCATION SKETCH

(5) EQUIPMENT:
Rotary ☒ Reverse ☐
Cable ☐ Air ☐
Other ☐ Bucket ☐

(6) GRAVEL PACK:
Yes ☒ No ☐ Size 25-4
Diameter of bore 9"
Packed from 25' to 180'

(7) CASING INSTALLED:
Steel ☐ Plastic ☒ Concrete ☐

(8) PERFORATIONS:
Type of perforation or size of screen

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
0	180	5	160	60	180	5x5

(9) WELL SEAL:
Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 25' ft.
Were strata sealed against pollution? Yes ☐ No ☒ Interval _____ ft.
Method of sealing Cement

(10) WATER LEVELS:
Depth of first water, if known 60 ft.
Standing level after well completion 40 ft.

(11) WELL TESTS:
Was well test made? Yes ☒ No ☐ If yes, by whom? Driller
Type of test Pump ☐ Bailor ☒ Air lift ☒
Depth to water at start of test 40 ft. At end of test 100 ft.
Discharge 25 gal/min after 2 hours Water temperature _____
Chemical analysis made? Yes ☐ No ☒ If yes, by whom? _____
Was electric log made Yes ☐ No ☒ If yes, attach copy to this report

(12) WELL LOG: Total depth 180 ft. Completed depth 180 ft.
from ft. to ft. Formation (Describe by color, character, size or material)

0 - 5' clay
5 - 9' gravel & boulders
9 - 60' clay
60 - 180' green clay, streaks
of sandstone

RECEIVED
AUG 1 1989

DEPT. OF
ENVIRONMENTAL MANAGEMENT

Work started 4-13- 19 89 Completed 4-17- 19 89

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signed William Pulliam
(Well Driller)
NAME Pulliam Well Drilling
(Person, firm, or corporation) (Typed or printed)
Address 3877 Piedmont Ave
City Napa ZIP _____
License No. 248677 Date of this report 4-18-89

47-370-011

#4390

QUADRUPLICATE
Use to comply with
local requirements

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
WATER WELL DRILLERS REPORT

Do not fill in

No. **384952**

Notice of Intent No. _____
Local Permit No. or Date 32111

State Well No. _____
Other Well No. _____

(1) OWNER: Name Mr. [redacted]
Address 5267 Old Sonoma Rd.
City Napa ZIP _____

(12) WELL LOG: Total depth 485 ft. Completed depth 485 ft.
from ft. to ft. Formation (Describe by color, character, size or material)

(2) LOCATION OF WELL (See instructions):
County 28 Owner's Well Number _____
Well address if different from above same
Township 41 Range 31 Section 11
Distance from cities, roads, railroads, fences, etc. corner of
Old Sonoma Rd and
Daily Lane

0 - 135 Clay

135 - 310 green clay, streaks

- of br. Ken up sand-

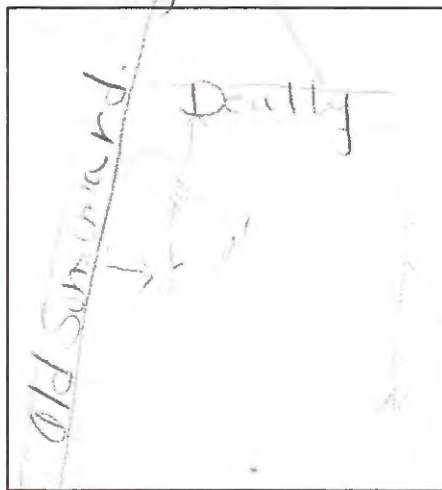
- stone

310 - 440 clay

440 - 485 green clay, streaks

- of br. Ken up sand

485 - 485 clay



(3) TYPE OF WORK:
New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe
destruction materials and pro-
cedures in Item 12)

(4) PROPOSED USE:
Domestic ☒
Irrigation ☒
Industrial ☐
Test Well ☐
Municipal ☐
Other ☐ (Describe)

WELL LOCATION SKETCH

(5) EQUIPMENT:
Rotary ☒ Reverse ☐
Cable ☐ Air ☐
Other ☐ Bucket ☐

(6) GRAVEL PACK:
Yes ☐ No ☒ Size _____
Diameter of bore _____
Packed from _____ to _____ ft.

(7) CASING INSTALLED:
Steel ☐ Plastic ☒ Concrete ☐

(8) PERFORATIONS:
Type of perforation or size of screen

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
0	485	4	4	0	485	4

(9) WELL SEAL:
Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 11 ft.
Were strata sealed against pollution? Yes ☐ No ☒ Interval _____ ft.
Method of sealing T

(10) WATER LEVELS:
Depth of first water, if known _____ ft.
Standing level after well completion 40 ft.

(11) WELL TESTS:
Was well test made? Yes ☒ No ☐ If yes, by whom? Driller
Type of test Pump ☐ Bailer ☐ Air lift ☐
Depth to water at start of test _____ ft. At end of test 266 ft.
Discharge 10 gal/min after 2 hours Water temperature _____
Chemical analysis made? Yes ☐ No ☐ If yes, by whom? _____
Was electric log made Yes ☐ No ☐ If yes, attach copy to this report

Work started 11-18-92 Completed 12-5-92

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signed _____ (Well Driller)
NAME Tullman Well Drilling
Address 2871 Piedmont Ave
City Napa ZIP 94558
License No. 248671 Date of this report 12-15-92

File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. **e0230832**

Page _____ of _____

Owner's Well Number _____

Date Work Began **08/26/2014**

Date Work Ended **9/4/2014**

Local Permit Agency **Napa County**

Permit Number **E14-00673**

Permit Date **8/21/14**

DWR Use Only - Do Not Fill In

State Well Number/Site Number

Latitude

Longitude

APN/TRS/Other

Geologic Log

Orientation ☒ Vertical ☐ Horizontal ☐ Angle Specify _____
Drilling Method **Direct Rotary** Drilling Fluid **Polymer mud**

Depth from Surface Description
Feet to Feet Describe material, grain size, color, etc

0	60	Brown Clay
60	65	Sandy Gravel
65	185	Brown Clay
185	315	Hard Gray Rock
315	535	Gray & White Clay
Perforation Lay out		
P = Perforation		
B = Blank		
0 to 153 Blank		
P		
B		
P		
B		
P 253 ft		
B		
P		
P		
B		
P 353 ft		

RECEIVED
OCT 06 2014

Napa County Planning, Building
& Environmental Services

Well Owner

Name **Madonna Estates**

Mailing Address **5400 Old Sonoma Road**

City **Napa** State **CA** Zip **94559**

Well Location

Address **5400 Old Sonoma Road**

City **Napa** County **Napa**

Latitude _____ N Longitude _____ W
Deg. Min. Sec. Deg. Min. Sec.

Datum _____ Dec. Lat. _____ Dec. Long. _____

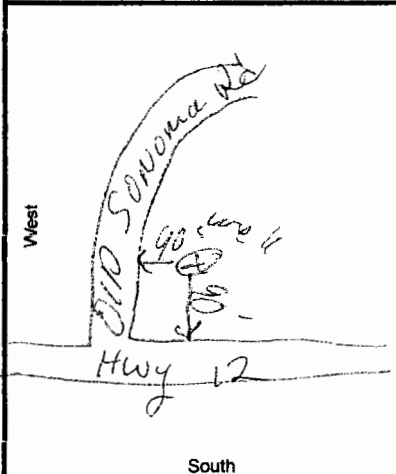
APN Book **047** Page **110** Parcel **016-000**

Township _____ Range _____ Section _____

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North



South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

- ☒ New Well
- ☐ Modification/Repair
 - ☐ Deepen
 - ☐ Other _____
- ☐ Destroy

Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

- ☒ Water Supply
 - ☐ Domestic ☐ Public
 - ☒ Irrigation ☐ Industrial
- ☐ Cathodic Protection
- ☐ Dewatering
- ☐ Heat Exchange
- ☐ Injection
- ☐ Monitoring
- ☐ Remediation
- ☐ Sparging
- ☐ Test Well
- ☐ Vapor Extraction
- ☐ Other _____

Water Level and Yield of Completed Well

Depth to first water **140** (Feet below surface)

Depth to Static

Water Level **120** (Feet) Date Measured **09/04/2014**

Estimated Yield * **20** (GPM) Test Type **Air Lift**

Test Length **4.0** (Hours) Total Drawdown **200** (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	58	11	Blank	PVC Sch. 40	R21	5	
58	153	8.5	Blank	PVC Sch. 40	R21	5	
153	353	8.5	Screen	PVC Sch. 40	R21	5	Milled Slots 0.032

Annular Material

Depth from Surface Feet to Feet	Fill	Description
0	58	Cement
58	535	Filter Pack
		cement / Vol Clay
		# 6 well pack

Attachments

- ☐ Geologic Log
- ☐ Well Construction Diagram
- ☐ Geophysical Log(s)
- ☐ Soil/Water Chemical Analyses
- ☐ Other _____

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name **Pulliam Well Exploration Inc**

Person, Firm or Corporation

4371 Cantelow Road

Vacaville

CA 95688

Signed _____

City

State

Zip

C-57 Licensed Water Well Contractor

Date Signed **9/7/2014**

808-505

C-57 License Number

QUADRUPLICATE
Use to comply with
local requirements

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
WATER WELL DRILLERS REPORT

5-4-80
Do not fill in
No. 103180

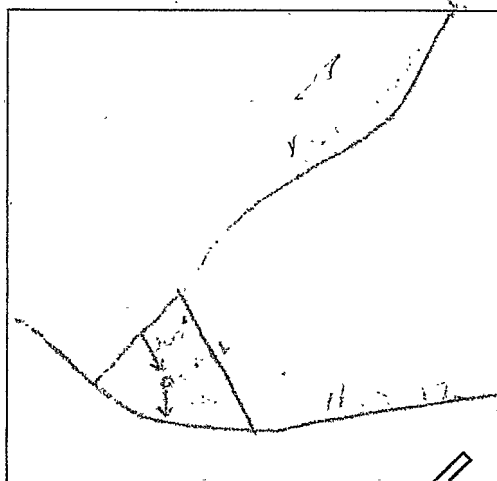
Notice of Intent No. _____
Local Permit No. or Date _____

State Well No. _____
Other Well No. _____

(1) OWNER: Name _____
Address _____
City _____ Zip _____

(2) LOCATION OF WELL (See instructions):
County Napa Owner's Well Number 47-110-16
Well address if different from above Hwy 12 & Old Sonoma Rd
Township Napa Range _____ Section _____
Distance from cities, roads, railroads, fences, etc. _____

(12) WELL LOG: Total depth 150 ft. Depth of completed well 150 ft.
from ft. to ft. Formation (Describe by color, character, size or material)
0 - 3 Topsoil
3 - 14 Brown clay
14 - 31 Sandy brown clay
31 - 50 Blue clay
50 - 61 broken rock clay stringers
61 - 150 Brown clay



(3) TYPE OF WORK:

New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐

Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:

Domestic ☒
Irrigation ☐
Industrial ☐
Test Well ☐
Stock ☐
Municipal ☐
Other ☐

(5) EQUIPMENT:

Rotary ☐ Reverse ☐
Cable ☐ Air ☒
Other ☐ Bucket ☐

(6) GRAVEL PACK:

Yes ☒ No ☐ Size 8 3/4
Diameter of bore 21
Packed from 0 to 21 ft.

(7) CASING INSTALLED:

Steel ☐ Plastic ☒ Concrete ☐

(8) PERFORATIONS: machine

Type of perforation or size of screen

From ft.	To ft.	Dia. in.	Cage or Wall	From ft.	To ft.	Slot size
0	30	6		30	150	1/8 x 3

(9) WELL SEAL:

Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 21 ft.
Were strata sealed against pollution? Yes ☐ No ☒ Interval _____ ft.
Method of sealing _____

(10) WATER LEVELS:

Depth of first water, if known 50 ft.
Standing level after well completion 8 ft.

(11) WELL TESTS:

Was well test made? Yes ☐ No ☒ If yes, by whom? Driller
Type of test Pump ☐ Bailor ☒ Air lift ☐
Depth to water at start of test 50 ft. At end of test _____ ft.
Discharge 30 gal/min after _____ hours Water temperature _____
Chemical analysis made? Yes ☐ No ☒ If yes, by whom? _____
Was electric log made? Yes ☐ No ☒ If yes, attach copy to this report

Work started 5/22 1978 Completed 5/24 1978

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED [Signature] (Well Driller)

NAME Doshier-Gregson Drilling Inc.
(Person, firm, or corporation) (Typed or printed)

Address 5365 Napa-Vallejo Hwy
City Vallejo Zip 94590
License No. 294001 Date of this report 5/25/78