Exhibit E-1

RICHARD C. SLADE & ASSOCIATES LLC
CONSULTING GROUNDWATER GEOLOGISTS

TECHNICAL MEMORANDUM

September 25, 2023

To: Mr. Muktheswara Rao Meka
4473 Atlas Peak Road
Napa, CA 94558
Sent via email (rmeka@protonmail.com)

Cc: Mr. Mike Muelrath, P.E.
Applied Civil Engineering Incorporated (ACE)
Sent via email: (mike@appliedcivil.com)

Job No. 785-NPA01

From: Kendall Tipton, Edward Linden, & Anthony Hicke
Richard C. Slade & Associates LLC (RCS)

Re: Results of Napa County Water Availability Analysis for
Meka Vineyard Development Project
4473 Atlas Peak Road
Napa, CA 94558
APN 032-540-034



Introduction

This Technical Memorandum (TM) presents the key findings, conclusions, and preliminary recommendations regarding the Water Availability Analysis (WAA) prepared by RCS for the proposed Meka Vineyard Development Project at the Meka property, located at 4473 Atlas Peak Road, in Napa, CA. This document was prepared by RCS to provide conformance with Napa County Tier 1 and Tier 2 requirements, as described in both the Napa County WAA Guidelines (Napa County, 2015), and in more recent information published by Napa County (2023a).

The Meka property is referred to herein as the "subject property" and consists of a single parcel identified by Napa County Assessor's Parcel Number (APN) 032-540-034. According to the Napa County parcel dataset, the area of the subject property is 91.0 acres (Napa County, 2023b). Figure 1, "Regional Map", depicts the boundaries of the subject property in relation to a regional topographic map (credits shown thereon). Also shown on Figure 1 are the locations of: County-defined "Significant Streams" (PBES & LSCE, 2022a); the 1,500-foot buffer zones around the "Significant Streams" (PBES & LSCE, 2022b); and watershed boundaries (LSCE & MBK, 2013). Figure 2, "Property Map", depicts a larger scale view of the same property boundaries shown on Figure 1, superimposed on an aerial image of the area (imagery attribution thereon). Figure 2 also shows the locations of the three existing onsite water wells, the three onsite springs, and the approximate locations of possible offsite wells and springs owned by others. The possible offsite water sources shown on the Figures herein were primarily identified as part of RCS's Napa County records discovery process (PBES, 2023).

The subject property is currently developed with a residence and associated minor landscaping; no vineyards currently exist on the property. Water demands for the existing onsite developments

have historically been and will continue to be met by pumping groundwater from the existing House Well.

The proposed project consists of the development of 19.8 acres of new vineyards on the subject property. For this project, the future water demands for the new vineyards are proposed to be met using groundwater pumped from the New Well and the House Well (referred to herein as the "project wells"), and from spring flow collected from the onsite springs.

As part of the permit submittal for the proposed vineyard development project, a WAA is required by the County. The purpose of this TM is to comply with the County's applicable WAA guidelines for the proposed project; those guidelines were promulgated by the County in May 2015. A "Tier 1" WAA is required (i.e., a Groundwater Recharge Estimate) for the project. Due to the presence of a known offsite well and multiple offsite springs that exist within the County-defined distances for offsite water sources owned by others (within 500 feet [ft] and 1,500 ft for wells and springs, respectively, of the project wells), County WAA requirements necessitate a "Tier 2" WAA (i.e., a Well and Spring Interference Evaluation). Because there are no "Significant Streams" within 1,500 ft of the project wells, County requirements for a "Tier 3" WAA (i.e., a Stream Interference Evaluation) have been presumptively met according to the WAA Guidelines; and are not discussed further herein.

Site Conditions

From our data review work and from our field reconnaissance visit to the subject property on November 11, 2022, the following key items were noted and/or observed (refer to Figure 2):

a. The subject property is situated within the mountains that form the eastern edge of the Napa Valley. The topographic contours on Figure 1 indicate that the subject property is located on the eastern side of a ridgeline that trends northwest to southeast through the area. In general, the property slopes moderately to the north-northeast.

b. The southwestern corner of the subject property falls within the Milliken Creek Watershed, whereas the vast majority of the property lies within the Capell Creek Watershed (USGS, 2023). The Capell Creek Watershed slopes moderately to the north-northeast. Notably, the Capell Creek Watershed is not tributary to Napa River, whereas the Milliken Creek watershed is tributary to the Napa River.

c. Existing developments on the subject property consist of one residence with associated landscaping. There are currently no vineyards planted on the property.

d. Offsite areas surrounding the subject property consist primarily of residences and vineyards. Natural vegetated hillsides (i.e., undeveloped areas) were also observed in some offsite areas.

e. The existing onsite water wells are located in the lower elevations in the northwestern portion of the property, near the existing residence (see Figure 2). The House Well reportedly supplies all water needed for domestic supply to the primary residence and for minor landscaping associated with the residence, whereas the New Well was recently constructed and is not currently in use. It should be noted that the current property owner only recently acquired the property, so historic use of the onsite wells is not known. A backup well was also observed at the property (labeled as the "Backup

Well"), located to the west of the New Well. No other onsite wells are known to exist on the subject property.

f. Three springs were observed by the RCS geologist during the site visit at the location shown on Figure 2. Spring 1 and Spring 2 have been developed with 1.25-inch diameter PVC collection pipes drilled into the hill. Spring 3 is currently undeveloped.

g. During the site visit, an RCS groundwater geologist also traveled along onsite roads and offsite public roads in the area surrounding the subject property in an attempt to identify the possible existence of nearby offsite wells owned by others.

RCS geologists also reviewed the County Planning, Building, and Environmental Service (PBES) electronic document retrieval website (PBES, 2023b), in an attempt to acquire "Well Completion Reports" (also known as "driller's logs") and other documents that might exist for the onsite wells, possible offsite wells located on nearby properties, and offsite springs located on nearby properties. In addition, RCS groundwater geologists used the California Department of Water Resources (DWR) online Well Completion Report (WCR) website (DWR, 2023) in an attempt to acquire WCRs for the onsite wells. That work resulted in the acquisition of several WCRs for wells that were constructed in the vicinity of the subject property.

Figure 2 shows the approximate locations of known, reported, and/or inferred nearby offsite wells and springs near the subject property, as determined from: the RCS site visit, the above-described public records research, and from communications by Mr. Meka with the owners of neighboring properties. The approximate locations of the offsite wells and springs shown on the Figures herein may not be an exhaustive presentation of these features; other possible offsite water sources may also exist near the subject property. The nearest known offsite well to the New Well is 370 feet ft to the east (labeled as "Offsite Well" on the Figures herein); the nearest offsite spring is 880 ft to the northeast of the New Well (labeled as "Offsite Spring 1" on the Figures herein). The nearest offsite well to the House Well is the "Offsite Well" located 980 feet ft to the northeast, whereas the nearest offsite spring ("Offsite Spring 1") is 1355 ft to the northeast of the New Well.

Key Construction and Testing Data for Existing Onsite Wells and Springs

RCS was not involved in the siting, design, or construction of any of the onsite wells. WCRs for the New Well and the House Well were provided from the owner and/or downloaded from the PBES website; these WCRs are identified by Log No. WCR2022-007472 and Log No. 13557, respectively. In addition, a log for a borehole that was drilled and not converted into a well (referred to herein as "Test Borehole" was also provided by the owner (Log No. WCR2022 007474). A copy of each WCR is included in the Appendix to this TM. However, a driller's log for the Backup Well could not be located from the various online sources reviewed by RCS. Limited information was obtained for the Backup Well from an RCS site visit. Although it was concluded by RCS for the purposes of this WAA that the WCR (Log No. 13557) correlates with the House Well, that correlation is not definitive, and there is some evidence suggesting that WCR could possibly be associated with the Backup Well. Additional information for the onsite wells was derived from onsite work by Ray's Well Testing Service of Sebastopol, California (RWTS) performed in 2021. Table 1, "Summary of Well Construction and Pumping Data", provides key well construction data, groundwater airlift flow rate data, and pumping data that are available for the onsite wells.

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New Well (Log No. WCR2022-007472)

Key data listed on the available driller's log for the New Well and/or identified during the site visit include:

- This well was drilled and constructed in June and July of 2022 by Huckfeldt Well Drilling (HWD) of Napa, California, using the direct air rotary method.
- The well was drilled and constructed to a depth of 178 ft using a 6-5/8-inch diameter PVC casing.
- A cement sanitary seal was emplaced to a depth of 23 ft bgs in the well.
- The pilot borehole was reported to have been drilled to a depth of about 440 ft below ground surface (bgs).
- The borehole was cased with polyvinyl chloride (PVC) well casing having a nominal diameter of 6 inches; the total casing depth of the New Well is reported to be 178 ft bgs. During the November 2022 site visit, a PVC casing was observed at the wellhead of the New Well.
- Casing perforations for the New Well are reported to consist of factory-milled slots with an opening width of 0.032 inches (32-slot). Perforations in this well were placed between the depths of 38 ft to 98 ft bgs and 118 ft to 158 ft bgs.
- The gravel pack material listed on the driller's log is "pea gravel."

Backup Well

No WCR was available for the Backup Well, and therefore no construction data are available for this well. Note that the property owner plans to rehabilitate and restore the well to working order in the future.

- The well casing is reportedly 6-inch outer diameter (OD) of unknown material, with a steel well cap as observed by the RCS geologist.
- During the RCS site visit on November 11, 2022, a static water level of 30.12 ft brp was measured in the well.

House Well (Log No. 13557)

Key data listed on the available driller's log for the House Well and/or identified during the site visit include:

- This well was drilled and constructed in June 1967 by Doshier-Gregson Well Drilling Service of American Canyon, California, using the direct air rotary method.
- The well was drilled to a depth of 210 ft bgs, but well casing was only installed to 20 ft bgs. RCS interprets this as representing an open borehole well, with no casing in the borehole between the depths of 20 ft and 210 ft bgs.

- The well casing is reportedly 8½-inch outer diameter (OD) steel, according to the RWTS data sheet.
- A cement sanitary seal was reportedly emplaced, but the depth was not listed.
- The pilot hole (the borehole drilled before the well casing was placed downwell) was reported to have been drilled to a depth of about 210 ft bgs.
- The well was reportedly airlifted at a rate of 20 gpm.
- As reported on the WCR, a static water level of 67 ft bgs was reported by the driller shortly after the well was constructed in June 1967.
- During the RCS site visit on November 11, 2022, a static water level of 74.25 ft brp was measured in the well.

Test Borehole (Log No. WCR2022 007474)

A test borehole was drilled onsite by HWD in June 2022, just before the New Well was drilled and constructed.

a. A total drilling depth of 460 ft is listed on the WCR for the borehole, which is shown to have been drilled using air rotary methods.

b. An airlift flow rate of 4 gpm is listed on the log. This was presumably performed in the open borehole and was deemed not a significant enough flow for well completion for the purposes of the project. This borehole was not converted into a cased water well, and the borehole was destroyed.

Onsite Springs 1 and 2

Onsite Springs 1 and 2 were developed via the installation of PVC piping into a horizontally-drilled borehole. Only the permits are available; no final WCR has been observed by RCS.

a. Springs 1 and 2 were developed in 2022 by the current property owner. Review of County files revealed a “well permit” for development of one of the springs.

b. The permit shows a horizontal boring diameter of 5.25 in, with a casing diameter of 1.25 in. and a seal thickness of 2 in.

c. No flow rate data are shown on the “well permit”. Flows are noted to be variable and seasonal in the onsite springs, as follows:

    - During the November 11, 2022 site visit, the RCS geologist made the following flow observations: Spring 1 flowing at 1.2 gpm; Spring 2, flowing at 0.01 gpm; Spring 3, not flowing. These flows likely represent the lowest flows available from the springs, as they were collected near the end of an extended period drought in the State.

    - On March 28, 2023, the RWTS pumper measured approximate flow rates from Springs 1, 2, and 3 of 10.3 gpm, 0.6 gpm, and 11.3 gpm, respectively. Spring 2023 was a rainy period in the County.

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Key construction details of the Offsite Well

The presumed driller's log for the Offsite Well observation well (WCR 285198) was obtained from Napa County (PBES, 2023), and the following information was derived from that document:

a. The offsite well was drilled and constructed in March of 1990.

b. The well was drilled and constructed to a depth of 370 feet using 6-inch diameter PVC casing.

c. Perforations are between the depths of 100 ft to 120 ft bgs and 210 ft to 370 ft bgs in the 6-inch diameter casing.

d. A cement sanitary seal was emplaced to a depth of 20 ft bgs in this well.

Local Geologic Conditions

Figure 3, "Geologic Map", illustrates the types, lateral extents, and boundaries between the various earth materials mapped at ground surface in the region by others. The basemap shown on Figure 3 was adapted by RCS from the results of regional geologic field mapping of the Napa and Bodega Bay Quadrangles, as published by the CGS (Wagner & Gutierrez, 2017). As shown on Figure 3, the key earth materials mapped at ground surface in the area of the subject property, from geologically youngest to oldest, include the following:

a. Landslide deposits [1]. These deposits consist of debris flow and block slump landslides (map symbol Qls on Figure 3). These deposits are generally unconsolidated, and consist of layers and lenses of sand, gravel, silt, and clay. These earth materials occur at ground surface over most of subject property and extend to the north, east, and southeast. Such landslides are often mapped to exist at exposed contacts between the Sonoma Volcanics and the Great Valley Complex rocks throughout Napa County. In general, the materials that comprise the slide are transported volcanic rocks; this is consistent with observations made by the RCS geologist during the site visit.

b. Sonoma Volcanics. The Sonoma Volcanics are comprised of a highly variable sequence of chemically and lithologically diverse volcanic rocks. These rock types include: andesitic lava flows (map symbol Psvasl); pumiceous tuff (map symbol Tsvat); and tuff locally interbedded with sediments (map symbol Tsvt). As shown on Figure 3, andesitic lava flows are the primary volcanic rock material exposed at ground surface on the subject property; a possible exposure of pumiceous ash-flow tuff occurs at ground surface to the south of the subject property. A small exposure of tuff interbedded with sediments occurs at ground surface to the northwest of the subject property.

c. Great Valley Complex. Great Valley Sequence (map symbols KJgv and KJgvm) of the Great Valley Complex geologic formation is exposed at ground surface in the area north and northeast of the subject property. The specific geologic units of the Great Valley Sequence were mapped by others within the Figure 3 extent as sedimentary

[1] Note that it was not a part of our Scope of Hydrogeologic Services for this project to study, investigate, analyze, determine, or opine on the potential activity of landslides, and/or on the potential impact that landslides might have on any of the onsite structures, or to any onsite and/or offsite wells used for the subject property.

rocks including marine shale, sandstone, and conglomerate (map symbol KJgv) and the Melange in the lower Great Valley Sequence (map symbol KJgvm), as structurally disrupted mudstone and sandstone. These geologically ancient rocks were mapped to the north and northeast of the subject property. These rocks occur at an unknown depth beneath the subject property, underlying the landslide materials and the Sonoma Volcanics.

d. Coast Range Ophiolite. The Coast Range Ophiolite formation is exposed at ground surface in an area north of the subject property, just within the map extent of Figure 3. The specific geologic units of the Coast Range Ophiolite were mapped by others within the Figure 3 extent as altered and massive, and contains: pillow basalt (map symbol Jv); gabbro and diabase (map symbol Jgb); and serpentinite (map symbol sp). The possible subsurface expression of these rocks beneath the subject property is unknown, and they may occur at an unknown depth far beneath the subject property.

RCS interpretation of the driller's descriptions of the drill cuttings listed on the driller's log for the New Well reveals that typical rocks of the Sonoma Volcanics were encountered when drilling the pilot borehole for this well. Typical driller-terminology for the drill cuttings on this log included: "hard fractured volcanic rock"; "tan volcanic tuff"; "hard tan volcanics"; "black sandy ash"; "gray sandy ash"; and "tan sandy ash". Therefore, based on the generalized terminology listed by the driller on the WCR, the Sonoma Volcanics are interpreted by RCS to possibly extend to depths of at least 305 ft bgs at the location of the New Well. Beneath a depth of 305 ft, the driller described the cuttings as "gray clay" and "shale", interpreted by RCS to represent the Great Valley Sequence. Similar terminology is used on the WCR for the Test Borehole; "shale" is described at a depth of 280 ft thereon. It is unclear based on the limited descriptions of the cuttings if the Sonoma Volcanics into which the New Well and the Test Borehole were drilled are "in place" (i.e., were not transported following deposition) or were moved as part of the landslide mapped to exist at the property.

Local Hydrogeologic Conditions

The earth materials described above can generally be separated into two basic categories, based on their relative ability to store and transmit groundwater to wells. These two basic categories include potentially water-bearing materials and potentially non-water-bearing materials.

Potentially Water-Bearing Materials

The principal water-bearing materials beneath the subject property and its environs are represented by the hard, fractured volcanic flow rocks and flow breccias of the Sonoma Volcanics. The occurrence and movement of groundwater in these rocks tend to be controlled primarily by the secondary porosity within the rock mass, that is, by the fractures and joints that have been created in these harder volcanic flow-type rocks over time by various volcanic and tectonic processes. Specifically, these fractures and joints are thought to have resulted from the cooling of these originally molten materials following their deposition, and also from mountain building or tectonic processes (faulting and folding) that have occurred over time in the region after the rocks were emplaced/deposited and hardened. Some groundwater can also occur in zones of deep weathering that developed between the periods of volcanic activity that yielded the various flow rocks, and also within the pore spaces created by the grain-to-grain interaction in the volcanic tuff and ash, where these materials exist amongst the harder, flow-type rocks.

As stated above, the principal rock type expected in the subsurface beneath a portion of the property is a combination of hard, volcanic flow rock, and ash flow tuff that may be fractured to varying degrees. Descriptions of drill cuttings by the well driller that are recorded on the available driller's log for the New Well are consistent with the typical descriptions of the various rocks known in the Sonoma Volcanics, to a depth of roughly 300 ft bgs. From long-term experience by RCS with the fractured flow rocks within the Sonoma Volcanics, based on numerous other water well projects in Napa County, pumping capacities in individual wells have ranged widely, from rates as low as only a few gpm, to rates greater than 200 gpm.

Potentially Non-Water-Bearing Materials

This category includes the geologically older and fine-grained metasedimentary and metaigneous rocks of the Great Valley Sequence and Coast Range Ophiolite; these materials, which are considered to be the local bedrock, do not occur at ground surface on the property. However, these potentially non-water-bearing materials are interpreted to underlie the volcanic rocks that exist beneath the subject property at depths greater than approximately 300 ft bgs in the vicinity of the New Well and the Test Borehole.

In essence, these diverse metasedimentary and metaigneous rocks are well-cemented and well-lithified and have an overall low permeability. Occasionally, localized conditions can allow for small quantities of groundwater to exist in these rocks wherever they may be sufficiently fractured and/or are relatively more coarse-grained. However, even in areas with potentially favorable conditions, well yields are often only a few gpm in these rocks, and the water quality can be marginal to poor in terms of various dissolved constituents.

Geologic Structure

Two bedding orientation measurements are shown on the geologic map, in the Great Valley Sequence and the Sonoma Volcanics tuff, both exhibiting bedding dips towards the southwest, in the opposite direction of the surface topography. Specifically, a measurement is shown within the Great Valley Sequence for a bedding orientation of S73E with a 50-degree dip to the Southwest (S73E, 50°SW), while the Sonoma Volcanics tuff and sediments show a recorded dip angle of 30 degrees towards the southwest (S45E, 30°SW). In addition, Fault traces[2], as mapped by others, have been interpreted by others to exist in the vicinity of the subject property as shown by the red-colored, lines and/or dashed lines on Figure 3 (USGS, 2020). Specifically, these northwest-southeast trending fault traces, which are part of the Atlas Peak-Foss Valley lineament zone system, are shown to be mapped onsite and offsite of the property. Faults can serve to increase the number and frequency of fractures in the local earth materials, including the underlying Sonoma Volcanics. If such fractures were to occur, they would tend to increase the amount of open area in the rock fractures which, in turn, could increase the ability of the local earth materials to store groundwater. Faults can also act as barriers to groundwater flow. The possible nature and effect on groundwater of these onsite and offsite faults shown in Figure 3 are unknown.

[2] Note that it is neither the purpose of)nor within our Scope of Hydrogeologic Services for this project to assess the potential seismicity or activity of any faults that may occur in the region.

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Short Temp Pumping Test of the House Well

A short, two-hour long well capacity test was performed in the House Well in January of 2021 by RWTS; the RWTS report for that test is provided in the Appendix. For that test, the well was pumped for two hours, with a stabilized flow rate reported by RWTS to be 7.5 gpm. RWTS also reported an approximate pump-depth setting of 160 ft bgs, and a well depth of 210 ft bgs (based on measurement of the bottom of the well at the time of testing).

Pumping Tests of the New Well

Two pumping tests were performed successively in the New Well by RWTS, using a temporary test pump, as part of the vineyard project development. The purposes of the testing were to: determine an operational pumping rate for the New Well; assess whether or not the New Well could meet the irrigation demands of the vineyard project; and measure whether or not pumping the New Well at the operational pumping rate would induce water level drawdown impacts on a nearby offsite well owned by others, or if pumping of the New Well would result in a reduction in the flow of two nearby offsite springs owned by others.

The first of the tests by RWTS was a step drawdown test and the second test was a constant rate pumping test; the pumping duration of each test was 8 hours, and the pumping periods were separated by a 14.5-hour water level recovery period during which the New Well was not pumped. In addition, various observations were recorded by RWTS personnel at the following locations: in the onsite “House Well” and “Backup Well”; in the nearby neighbor’s well (“Offsite Well”); at the onsite springs ("Spring 1”, “Spring 2”, and “Spring 3”); and at the nearby offsite springs (“Offsite Spring 1” and “Offsite Spring 2”). The locations of these monitoring points are shown on Figures 2 and 3. Below is a description of each test, including the testing goals, specific testing parameters, and the results of each test. A water level logging pressure transducer was also installed in the New Well for monitoring of water levels during the various stages of the testing process.

Monitoring of the Non-Pumping Onsite Wells and Springs during New Well Tests

Data were collected by RWTS from the two non-pumping onsite wells and the three onsite springs during the pumping tests of the New Well. The House Well and the Backup Well were not pumped as part of the subject pumping tests, but were used as observation wells to monitor changes in water levels in those wells (if any) cause by virtue of the pumping of the New Well. In addition, the flow rate of spring discharge from Springs 1, 2, and 3 were monitored. Before, during, and after the pumping tests, depth to water measurements were recorded by RWTS occasionally in these onsite observation wells, and estimates of spring discharge were recorded at each of the three onsite springs.

Monitoring of the Nearby Offsite Well and Springs During New Well Tests

One offsite well is known to exist within 500 feet (to the northeast) of the New Well (a project well), whereas two offsite springs which are used for water supply purposes are known to exist within 1,500 feet northeast of both the New Well and the House Well (both project wells); see Figure 2 and 3. Because the distances of the offsite well and springs from the project wells, the subject property owner (Mr. Meka) offered to include the offsite well and the offsite springs as monitoring points during the RWTS pumping test of the New Well to help assess the possible impacts of

pumping onsite wells for the project on those offsite wells and springs; the offer was accepted by the neighboring well and spring owners.

Access onto the neighbor's property was arranged by Mr. Meka directly with the owner of the neighboring property. This access arrangement allowed RWTS to access the offsite well and springs to be used as observation monitoring points during the New Well Test.

Data Collection

Water level data were collected in the New Well by RWTS using a manual water level sounder and an installed water level logging pressure transducer. RWTS also collected multiple manual water level measurements each day in the non-pumping onsite wells and in the nearby neighbor's well (the "Offsite Well"). Flow measurements from all three of the onsite springs and Offsite Spring 1 were reportedly monitored using a 1-gallon bucket and a stopwatch to calculate the discharge rate. Flow measurements were not possible in Offsite Spring 2, so RWTS instead measured the depth of water in a spring-collector cistern into which Offsite Spring 2 discharges.

Figure 4A, "Hydrograph of New Well", shows the water level data collected form the New Well during the step drawdown test and the constant rate test of the New Well. Also Shown on Figure 4A are other details of the pumping tests such as pumping duration, and flow rate. Figure 4B, "Hydrograph of New Well Data and Observation Data", shows the same water level data as shown in Figure 4A, but includes water level data from the onsite and offsite observation wells and measurements from the onsite and offsite springs.

Step Drawdown Pumping Test of New Well

On March 28, 2023, an 8-hour step drawdown test of the New Well was performed by RWTS using a temporary test pump installed with a pump intake placed at a depth of approximately 160 ft below the wellhead reference point (ft brp). This 8-hour step drawdown test was performed at rates of 4, 8, 14, and 20 gpm, with variable pumping durations described below. Key data available from the step test by RWTS include:

- A SWL of 12.4 ft brp was measured in the New Well before the test began.
- Based on totalizer data recorded by the pumper, the New Well was initially pumped at a rate of 4 gpm for three hours, then at 8 gpm for two hours, followed by 14 gpm for 45 minutes, and finally at 20 gpm for 2 hours and 15 minutes.
- The deepest pumping water level (PWL) of the step drawdown pumping test was 22.6 ft brp, measured at the end of approximately 8 hours of pumping during the various step rates; this represents a water level drawdown of 10.2 ft, relative to the initial pre-test SWL (see Figure 4A).
- No water level changes were observed in the onsite House Well, the Backup Well, or the Offsite Well at any time during the 8 hours of continuous pumping from the step test of the New Well (see Figure 4B). Based on these data, no water level drawdown interference was induced in the House Well or the Offsite Well by virtue of pumping the New Well.
- During the 8-hour pumping period, the discharge rates of Onsite Spring 2, Onsite Spring 3, and Offsite Spring 1 were observed to remain consistent. The depth to water

for Offsite Spring 2 also did not vary during the pumping period. Additionally, there was a slight increase of 0.1 gpm in the discharge rate of Onsite Spring 1 during the 8 hours of pumping for the step drawdown test..

Constant Rate Pumping Test of New Well

A second pumping test was performed in the New Well by RWTS, beginning on March 29, 2023. The constant rate pumping test was performed using the same test pump installed for the step-drawdown pumping test. Based on the results of the step-drawdown test, a pumping rate of 20 gpm was selected for the constant rate pumping test; this was reportedly the maximum pumping rate the test pump was capable of pumping. Key data available from the constant rate pumping test by RWTS include:

Pumping Well (the New Well)

- A SWL of 12.7 ft brp was measured in the New Well before the test began. This SWL is only 0.3 ft lower than the SWL that was measured before the step drawdown test.
- Based on totalizer data recorded by the RWTS pumper, the New Well was pumped at an average rate of 20 gpm.
- The deepest PWL recorded during the constant rate test was 23.2 ft brp, which was measured after 8 hours of continuous pumping; this represents a water level drawdown of 10.5 ft relative to the SWL recorded prior to the beginning of this test.
- Based on the average pumping rate of 20 gpm, the specific capacity of the New Well is calculated to have been 1.9 gallons per minute per foot of water level drawdown (gpm/ft ddn) at the time of testing, following a pumping duration of 8 hours.
- Following 8 hours of non-pumping a water level recovery measurement of 12.9 ft was measured in the New Well; this depth is only 0.2 ft lower than the pre-test SWL.

Observation Wells and Springs

- Several water level measurements were collected by RWTS in the House Well, Backup Well, and Offsite Well (the observation wells) over the course of the constant rate pumping test. No water level changes were observed in the onsite House Well, Backup Well, or the Offsite Well at any time during the 8-hour constant rate test, and therefore no water level drawdown interference was induced in the observation wells by virtue of pumping the New Well.
- For the springs, RWTS measured consistent discharge rates throughout the New Well pumping period in Onsite Spring 2, Onsite Spring 3, and Offsite Spring 1. Monitoring of the water level depth in the spring cistern of Offsite Spring 2 indicated a consistent water depth throughout the pumping test, and thus showed no change.
- Onsite Spring 1 exhibited a decline in flow of 1.9 gpm over the course of the 8-hour pumping period of the New Well. That decline, however, may not be attributable to pumping from the New Well. A declining trend in flow is apparent even during periods of non-pumping, as shown on Figure 4B. More discussion of this phenomenon is discussed below under the heading “Local Hydrogeologic Conditions”.

- The water level in the Offsite Well was completely unchanged during the pumping portion of the test of the New Well. However, during the New Well recovery period, when the New Well was not pumping, the water level in the Offsite Well rose 0.9 feet during 40 hours of recovery.

Relative Elevations of Wells and Springs

Figure 5, "Schematic Cross Section Along A-A", shows an illustration of the relative locations and differences in elevation between the onsite and offsite wells and their perforations, the onsite and offsite springs, and water level measurements collected over time in the wells. Note that the section reflects an accurate vertical scale only, but the horizontal representation is not to scale. Also, all of the points on the section are projected locations. Notable from the schematic section are the following:

- The onsite springs are higher in elevation than any of the wells or water levels shown on the diagram.

- Generally, the Offsite well is perforated in and produces groundwater from much lower elevations than the onsite wells.

- Offsite Spring 2 is lower in elevation than all of the other springs shown on the section, and is also lower in elevation that the water levels in the nearby wells which are also shown on the section.

- A water level measurement was collected by the RCS geologist in November 2022. That measurement was at an elevation that was lower than the elevation of Offsite Spring 2. As reported by the neighboring property owner, neither offsite spring has ever stopped flowing.[3]

Dynamic Changes in Water Levels and Flow Rates Over Time

It is observed by RCS that the groundwater system at the subject property appears to be quite dynamic. Water levels and flow rates measured onsite during the 2023 rainy season, a season that was wetter than many prior years on record, were much higher than other measurements that have been recorded. In March 2023, during the pumping test work onsite, all three onsite springs were actively flowing, with Onsite Spring 1 and 3 flowing at rates greater than 10 gpm. During the November 2022 site visit by RCS, Onsite Spring 1 was measured to be flowing at a rate of 1.2 gpm, and Onsite Spring 3 was not flowing at all. Similar variations were noted in the onsite wells. For instance, in March 2023, a water level was recorded at a depth of 12.4 ft brp in the New Well. In contrast, following well construction in July 2022, the driller recorded a water level of 40 ft bgs. In November 2022, the RCS geologist measured a groundwater level of 63.1 ft bgs.

This distinction in water levels and flow rates is noteworthy due to the evident fluctuations between wet and dry seasons. These variations are typical in areas of the County underlain by Sonoma Volcanics with significant spring expressions in the area, likely associated with mapped ancient

[3] Reported to RCS by Mr. Meka.

landslide deposits. Following precipitation seasons of average or above-average rainfall, spring flows and water levels will tend to be higher compared to times during and following below-average rainfall and drought.

Project Water Demands

For the purposes of this WAA, the New Well and House Well are considered to be the "project wells", as they will be the onsite wells, in addition to the onsite springs, that are proposed to be used to meet the water demands of the proposed vineyard development project. All existing onsite water demands currently supplied by groundwater will continue to use groundwater pumped from the House Well.

Existing and proposed (future) onsite water demands for the property were estimated by the project Engineer, ACE, and provided to RCS in a table titled "Meka Vineyard Groundwater Use Estimates". The table, provided as an appendix to this TM, is intended to categorize the specific water demands of the project and other onsite uses. Those estimated annual onsite groundwater demands are discussed below.

Existing Water Demands

Water demands for the existing onsite residence and minor landscaping are currently met by pumping groundwater from the House Well. Because the property was only recently acquired by Mr. Meka, and there are no historic flowmeter totalizer data for the House Well, actual historic onsite water production from this well is unknown in terms of instantaneous flow rates and the total volume pumped each year. Therefore, the existing annual onsite water demands have been estimated by ACE as follows:

a. Existing residential groundwater demand including minor landscaping = 0.75 acre-feet per year (AFY)

Note that no water is currently exported from the subject property for offsite use, and no water is imported to the subject property for onsite use. In addition, no water is currently pumped from the New Well or the Backup Well, and no water is currently diverted from the onsite springs for any onsite use.

Proposed Water Demands

Groundwater demands for the proposed new vineyards will be met by pumping groundwater from the New Well, the House Well, and from collection of discharge from onsite springs; whereas groundwater demands for the residence and minor landscape irrigation will continue to be met by pumping groundwater from the House Well. The future onsite groundwater demands for the property have been estimated by ACE and RCS as follows:

a. Residential groundwater demand including minor landscaping = 0.75 AFY (same as existing)

b. New Vineyard irrigation groundwater demand = 8.56 AFY

   - This calculates to a unit water use for the proposed onsite vineyards of 0.43 AFY per acre (AFY/ac) of vineyard, based on the proposed vineyard area of 19.8 acres.

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This projection is within the standard range for vineyard irrigation in Napa (0.2 - 0.5 AFY/ac) estimated in the WAA guidance document (Napa County, 2015).

c. Total proposed future groundwater demand for the subject property = a + b = 9.31 AFY

Proposed Pumping Rates

Determination of the appropriate pumping rates/flow rates necessary from the project wells (the New Well and House Well) and the onsite springs to meet future onsite demands are as follows:

a. Residential demands are assumed to be required throughout the year. It is assumed that the House Well will pump on a 12-hour per day basis throughout the year to meet the domestic demand (0.75 AFY); this would require a pumping rate of about 0.9 gpm. (In reality, during the times of year when there is no vineyard irrigation demand and only residential demand, the well may pump at higher rates but for shorter durations).

b. To meet the proposed vineyard irrigation groundwater demands of 8.56 AFY, it was estimated that groundwater from the project wells will be pumped 12 hours per day during a 20-week irrigation season each year to meet the irrigation demand. Based on these assumptions, project wells will need to pump at a rate of about 27.7 gpm to meet the groundwater demands for the proposed project.

Hence by combining “a” and “b” above, the total groundwater flow rate during the irrigation season necessary to meet the future project demand is 28.6 gpm. As reported above, the constant rate pumping test of the New Well was performed by others at a pumping at a rate of 20 gpm (the maximum rate for the installed test pump), and the House Well yield was rated by RWTS at 7.5 gpm, for a total available flow rate of 27.5 gpm. This total combined flow rate from the onsite wells is 1.1 gpm less than the required flow rate to meet all onsite demands during the irrigation season. However, additional groundwater is available from the onsite springs. As noted above, during the November 2022 RCS site visit, the RCS geologist measured the flow rate of Onsite Spring 1 at 1.2 gpm. This flow rate was measured at the end of the rainfall year in 2022, which was at the end of a multi-year drought in the State. Hence, it is the opinion of RCS that, at a minimum, the Onsite Springs will reliably provide roughly 1 gpm or throughout the year (on a 24-hour per day basis, not 12 hours per day like the wells are proposed to be pumped). In reality, significantly more flow is available from the onsite springs. As shown during the constant rate test, Onsite Spring 1 and Onsite Spring 3 were measured by RWTS to be flowing at rates greater than 10 gpm, and Onsite Spring 2 was measured at a rate of 0.5 gpm. As is typical for springs in Napa County, the onsite springs will have higher flows in the spring, and those flows will taper-off to a lower rate over the summer. Hence, at the beginning of each irrigation season, roughly 1/3 or more of the irrigation demand (10 gpm or more) could be met using spring flow, offsetting well usage. Then, as the spring flows naturally decrease over the spring and summer months, irrigation would rely more on well pumpage. Based on the documented flow rates of the onsite wells and springs, the existing onsite groundwater infrastructure is sufficient to meet the irrigation demands for the project.

Furthermore, the Backup Well, once repaired will also be used to supply irrigation water for the project. Although the pumping rate of the well, once repaired, is unknown, the Backup well represents an additional source of groundwater for the project.

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WAA Tier 1: Groundwater Use for Napa County

Allowable groundwater extractions from the subject property, inclusive of those by the proposed new well and all existing onsite wells, must be calculated based on "Parcel Specific Recharge" because the applicant is proposing development of a new vineyard while using the current onsite wells for "Agricultural" groundwater use. The location of the proposed new development is outside the boundaries of the Napa Valley Subbasin (DWR, 2021). Current Napa County requirements (2023a) also require that parcel-specific groundwater recharge estimates presented in WAAs for projects outside of the Napa Valley Subbasin consider "average rainfall" to be the average annual rainfall that has occurred in the last 10 water years, as defined in the County's 10-year average precipitation dataset (Napa County, 2022).

Property-Specific Precipitation

Spatial analysis of the County's 10-year average rainfall data set (PBES, 2022) reveals that the average annual area-weighted rainfall for the 10-water-year period of 2012 to 2021 at the subject property is 29.93 inches (2.5 ft). Multiplying this average by the 91-acre assessed area of the subject property, then dividing by a factor of 12 to convert from inches to feet, results in a total of 226.9 acre-feet per year (AFY). This value is the volume of rainfall that the subject property receives on average each water year, per the County's current 10-year average methodology, but it does not consider the deep percolation rate (groundwater recharge rate) or the possible influence of ground surface slopes at the subject property.

Parcel-Specific Groundwater Recharge

Groundwater recharge on a long-term average annual basis at the subject property can be estimated as a percentage of average rainfall that falls on the property and subsequently undergoes deep percolation, ultimately entering the local aquifer system beneath the property. The actual percentage of rainfall that undergoes deep percolation is a function of numerous local and regional conditions, including ground surface slopes; soil types; ground cover; evapotranspiration; and the frequency, intensity, and duration of rainfall, among other possible factors.

Estimates of groundwater recharge as a percentage of rainfall were presented for several watersheds that are tributary to the Napa River in LSCE & MBK (2013). The watershed boundaries are shown on Figures 8-3 and 8-4 of LSCE & MBK (2013), and a local subset is shown on Figure 1 of this TM. The local subwatershed that contains a small portion of the subject property is referred to by LSCE & MBK (2013) as the "Milliken Creek Watershed" (see Figure 1), whereas the watershed that contains the rest, and the majority, of the subject property is referred to in the NHD (USGS, 2023) as the "Capell Creek Watershed".

For the purposes of this WAA, an 8% deep percolation rate was selected based on the data presented in LSCE & MBK (2013) because the southwest corner of the subject property is located within the Milliken Creek Watershed. There are no data for the Capell Creek Watershed in LSCE & MBK (2013), likely because it is not tributary to the Napa River. In 2015, RCS conducted a groundwater recharge estimate for a property located southeast of the subject property (RCS, 2015). That property, identified by APN 032-540-042, is situated in the Capell Creek Watershed and utilized a 9% deep percolation rate (RCS, 2015).

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To provide a site-specific estimate of the volume of precipitation that enters the local aquifer system that underlies the subject property, the more conservative 8% groundwater recharge rate of LSCE & MBK was used for the parcel-specific calculations presented herein. Multiplication of this groundwater recharge rate (8%) by the volume of rainfall that the subject property receives on average each water year (226.9 AFY) results in a parcel-specific average groundwater recharge rate of 18.2 AFY, by the County's current 10-year precipitation average methodology (see Table 2). This calculation does not include consideration of the effect of site-specific ground surface slopes on the volume groundwater recharge, however.

Effect of Slope on Groundwater Recharge Potential

Any estimate of the percentage of rainfall that enters an aquifer system via deep percolation that relies on estimates of rainfall, evapotranspiration, and surface water outflow for an entire watershed, such as those estimates provided by LSCE & MBK (2013), inherently includes the effects of ground surface slope. To provide a more site-specific estimate of the potential effects of ground slope on groundwater recharge at the subject property, a ground surface slope analysis is provided below.

Many basic geologic references assume that recharge potential is reduced on steeper slopes because steeper slopes tend to increase surface water runoff rates, and less time is therefore available for rainfall to percolate deeply before running off as surface flow. Page 56 of LSCE & MBK (2013) asserts that deep percolation recharge from rainfall is "significantly reduced" for land areas with slopes angles greater than 30 degrees. On page 11 of LSCE & MBK (2013), an assessment of slope angles (inclinations) greater than 30 degrees is also mentioned, and this was attributed to a prior LSCE report, namely "LSCE 2011" therein; that document is likely to be the reference listed as "2011a" on page 134 of LSCE & MBK (2013). LSCE (2011) states on page 29 that "areas in which the slope of the land surface exceeds 30 degrees, beyond which recharge potential is significantly reduced." No other references or data are presented in any of the above-referenced documents to quantify the qualitative description of "significantly reduced". Because the various factors that affect groundwater recharge are likely interrelated (Yeh et al., 2009), assigning a value to define the amount that recharge is diminished as a function of slope is extremely difficult. No references were reviewed by RCS that quantify the possible reduction of deep percolation that might occur as a function of ground surface slope angle.

To better estimate the actual amount of site-specific groundwater recharge that might occur at the subject property, consideration of ground surface slope was added to the groundwater recharge calculations presented above, resulting in the right-side portion of Table 2, "Estimated Recharge Based on Deep Percolation Assumption for Slope Angle". The proportion of slopes within the subject property shown thereon were derived from a U.S. Geological Survey (USGS) digital elevation model.

To calculate the "Reduced Recharge Assumption based on Slope Angle" on Table 2, deep percolation values were calculated by setting the deep percolation rate to zero for areas with slopes that are >30 degrees. As shown above, a groundwater recharge volume of 18.2AFY was calculated for the subject property assuming the LSCE & MBK (2013) value of 8% for the deep percolation rate for the entire 91-acre subject property. Within the subject property, 1.1% of the ground surface is comprised by slopes that exceed 30 degrees, which equates to an area of 1 acre. If it is assumed that deep percolation of rainfall does not occur over the portion of the subject

property with slopes >30 degrees, the average annual recharge that is estimated to occur at the subject property decreases by 0.2 AFY, to 18.0 AFY (see Table 2).

In accordance with Napa County guidelines (2015 & 2023a) and based on the analyses presented above, allowable groundwater extractions from the subject property are 18.0 AFY. Correspondingly, groundwater use at the subject property in the project wells will not exceed 18.0 AFY. Therefore, because the total proposed groundwater use at the subject property (9.31 AFY) is roughly half of the estimated groundwater recharge at the property (18 AFY), the Tier 1 WAA conditions are satisfied for the subject property.

WAA Tier 2 – Well and Spring Interference Evaluation

A Tier 2 WAA is necessary for the proposed project because an offsite well exists within 500 ft of the New Well and two offsite springs (which are used for water supply purposes) exist within 1,500 ft of the New Well, based on the results of RCS's review of Napa County records (PBES, 2023), and confirmed via communications between Mr. Meka and the owner of neighboring properties. The nearby offsite well is located 370 ft east of the New Well, Offsite Spring 1 is located 880 ft north of the New Well, and Offsite Spring 2 is located 890 ft northeast of the New Well (see Figure 2). No other offsite wells are known to exist within 500 ft of either of the project wells, and no other offsite springs are known to exist within 1,500 ft of the project wells.

To inform the Tier 2 WAA presented herein, an 8-hour constant rate pumping test was performed in the New Well, during which monitoring was performed in the Offsite Well and in both Offsite Spring 1 and Offsite Spring 2. For the constant rate pumping test, the New Well was pumped at a rate of 20 gpm, the same operational rate proposed for the well in the future. This pumping test was described in detail above, under the heading "Constant Rate Pumping Test of New Well." Water level data and flow rate data collected during the testing are provided on Figures 4A and 4B.

As described above and as illustrated on Figure 4B, measurements of water level and/or flow in the Offsite Well and Offsite Spring 1 and Offsite Spring 2 were unchanged during the pumping period. Specifically, during the 8-hour pumping period of the New Well: water levels did not decline in the Offsite Well; the water level in the Cistern at Offsite Spring 2 did not decrease.

Because no water level drawdown was observed in the offsite well, the test satisfies the acceptable drawdown criteria defined in the "Default Well Interference Criteria" shown on Table F-1 of the May 12, 2015, Napa County WAA Guidelines (2015). Those drawdown criteria in the WAA Guidelines (2015) show that water level drawdown interference is not considered significant by the County if the induced drawdown interference is less than 10 ft for offsite wells that have a casing diameter up to six inches (the casing diameter of this offsite observation well is six inches).

It is acknowledged that the other project well, the House Well, is also located less than 1,500 ft from the nearby offsite springs (but it is more than 500 ft from the nearby offsite well). However, because the House Well and New Well lie in roughly the same direction from the nearby offsite springs, but the House Well is located farther away from those springs than the New Well is, it is inferred that any possible interference with the flow of those springs induced by pumping of the New Well would be greater than any caused by pumping of the House Well. Additionally, the

pumping rate of the New Well is considerably higher than that of the House Well, further supporting the assertion that any interference with flow from the nearby offsite springs that might occur as a result of pumping of the New Well would be significantly greater than might occur due to pumping of the House Well. The magnitude of water level drawdown in an aquifer (or aquifers) that results from pumping of a well is generally, with few exceptions that are not applicable to the project site, greatest nearest the pumping well. Water level drawdown effects decrease as the distance from the pumping well increases. This water level drawdown region surrounding any pumping well is commonly referred to by hydrogeologists as a water level "cone of depression". Because the March 2023 pumping test showed that pumping the New Well had no effect on the neighboring Offsite well located 370 ft to the east, it can be inferred that water level drawdown effects would also not be observed at any wells that may exist in the area at distances greater than 370 ft from the pumping well. Also, because the House Well is further from the Offsite Springs, and pumps at a lower rate than the New Well, and because the New Well had no effect on the Offsite Springs, then it is inferred that the House Well will also have no effect on the offsite springs. Once repaired, the same assertions above that apply to the House Well apply to the Backup well. Because the Backup well is further from offsite wells and springs than is the New Well, it can be inferred that water level drawdown effects and/or spring flow effects on offsite well and springs would not occur when pumping the Backup Well.

Key Conclusions and Recommendations

1. The subject property is currently developed with a residence and associated minor landscaping. There are no existing vineyards or other significant developments on the subject property.
2. Current groundwater demands for the existing property are estimated to be approximately 0.75 AFY and are comprised of residential demands and associated minor landscape irrigation demands.
3. The proposed project consists of developing 19.8 acres of new vines, which will require 8.56 AFY of groundwater for irrigation purposes annually.
4. The future average annual groundwater demand for the proposed project (including the existing residence with minor associated landscaping, and 19.8 acres of new vines) is estimated to be approximately 9.31 AFY.
5. The groundwater demand for the proposed new vineyards will be met by pumping groundwater from the New Well, from the House Well, and from collection of discharge from two of the three onsite springs. The existing onsite water demands (the residence and landscaping) will continue to be supplied by the House Well.
6. To meet the annual water demand of the subject property each year during the irrigation season, the total combined flow rate from the project water sources (i.e., the New Well, the House well, and collection of discharge from onsite springs) would need to be 28.6 gpm. Based on the documented flow rates of the onsite wells and springs, the existing onsite groundwater infrastructure is sufficient to meet the irrigation demands for the project. The New Well and the House Well were tested at rates of 20 gpm and 7.5 gpm, respectively. The onsite springs have variable flow rates throughout the year, and are dependent upon rainfall each year.

Additional groundwater is available from the onsite springs. When measured at the end of the rainfall year in 2022, which was at the end of a multi-year drought in the State, the RCS geologist documented a flow from the onsite springs of about 1.2 gpm. This can be considered the low end of the flow available from the springs. In March of 2023, RWTS measured flow rates greater than 10 gpm in Onsite Spring 1 and 3, and Onsite Spring 2 was measured at a rate of 0.5 gpm. As is typical for springs in Napa County, the onsite springs will have higher flows in spring, and those flows will taper-off to a lower rate over the summer. Hence, at the beginning of each irrigation season, roughly 1/3 or more of the irrigation demand (10 gpm or more) could be met using spring flow, offsetting well usage. Then, as the spring flows naturally decrease over the spring and summer months, irrigation would rely more on well pumpage.

Combined with the available spring flow each year the onsite wells and springs are shown to be sufficient sources for groundwater for the proposed project.

7. Groundwater recharge at the subject property on an average annual basis is estimated to be 18.0 AFY; this value is based on conservative estimates of the average annual rainfall at the property (29.93 inches per year) and conservative estimates of the deep percolation rate of rainfall into the fractured rocks of the Sonoma Volcanics that underlie the subject property. This groundwater recharge estimate is nearly twice the estimated annual groundwater demand for the property of 9.31 AFY, and therefore meets the County's Tier 1 WAA requirements.

8. A constant rate pumping test was performed in the New Well for a period of 8-hours at a pumping rate of 20 gpm, the proposed operational pumping rate for the well. During the constant rate testing, no changes in water level depth or flow rate were observed the nearby Offsite Well and Springs that were monitored by RWTS. Therefore, the well met the conditions of a Tier 2 WAA.

9. In the future, RCS recommends monitoring on a regular basis static and pumping water levels, and also of the instantaneous flow rates and cumulative pumped volumes from both project wells, via the use of a water level pressure transducer and the proper installation of a dual-reading flow meter near the wellhead (that records both flow rate and totalizing values, respectively). RCS further recommends regular monitoring of the instantaneous flow rate and the cumulative discharge volumes from the onsite springs that are used for water supply purposes. RCS also recommends that new water level transducers be purchased and installed in the project wells to permit the automatic, frequent, and accurate recording of water levels in these wells. By continuing to observe the trends in groundwater levels and future well production rates/volumes over time by qualified professionals, potential declines in water levels and/or well production in the onsite wells can be addressed in a timely manner.

TECHNICAL MEMORANDUM

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Table 1
Summary of Well Construction and Testing Data
Meka Vineyard Development Project

WELL CONSTRUCTION DETAILS

Reported Well Designation	DWR Well Log No.	Date Drilled	Method of Drilling	Pilot Hole Depth (ft bgs)	Casing Depth (ft bgs)	Casing Type	Casing Diameter (in)	Borehole Diameter (in)	Sanitary Seal Depth (ft bgs)	Perforation Intervals (ft bgs)	Type and Size (in) of Perforations	Gravel Pack Interval (ft) and Size	Current Status of Well
New Well	WCR2022-007472	6/24/2022 to 7/5/2022	Direct Rotary	440	178	PVC	6.625	12" to 25' 9" to 440'	23	38-98, 118-158	0.032 Milled Slots	23 to 440 Pea Gravel	Active
House Well	13557	6/8/1967 to 6/10/1967	Direct Rotary	210	20	Steel	8.5	ND	ND	None	ND	ND	Active
Backup Well	ND	ND	ND	ND	ND	Unknown; Steel Well cap	6	ND	ND	ND	ND	ND	Unused
Offsite Well	281598	3/17/1990 to 3/24/1990	Air	390	370	PVC	6	ND	20	100-120, 210-370	0.032 Milled Slots	22 to 370 Pea Gravel	Active

POST-CONSTRUCTION YIELD DATA

Reported Well Designation	DWR Well Log No.	Date & Type of Test Data	Duration of Pumping Test (hrs)	Reported Flow Rate (gpm)	Static Water Level (ft)	Pumping Water Level (ft)	Estimated Specific Capacity (gpm/ft ddn)
New Well	WCR2022-007472	3/28/2023 Step Drawdown Pumping Test	8	4, 8, 14, 20	12.4	22.6	ND
		3/29/2023 Constant Rate Pumping Test	8	20	12.7	23	1.9

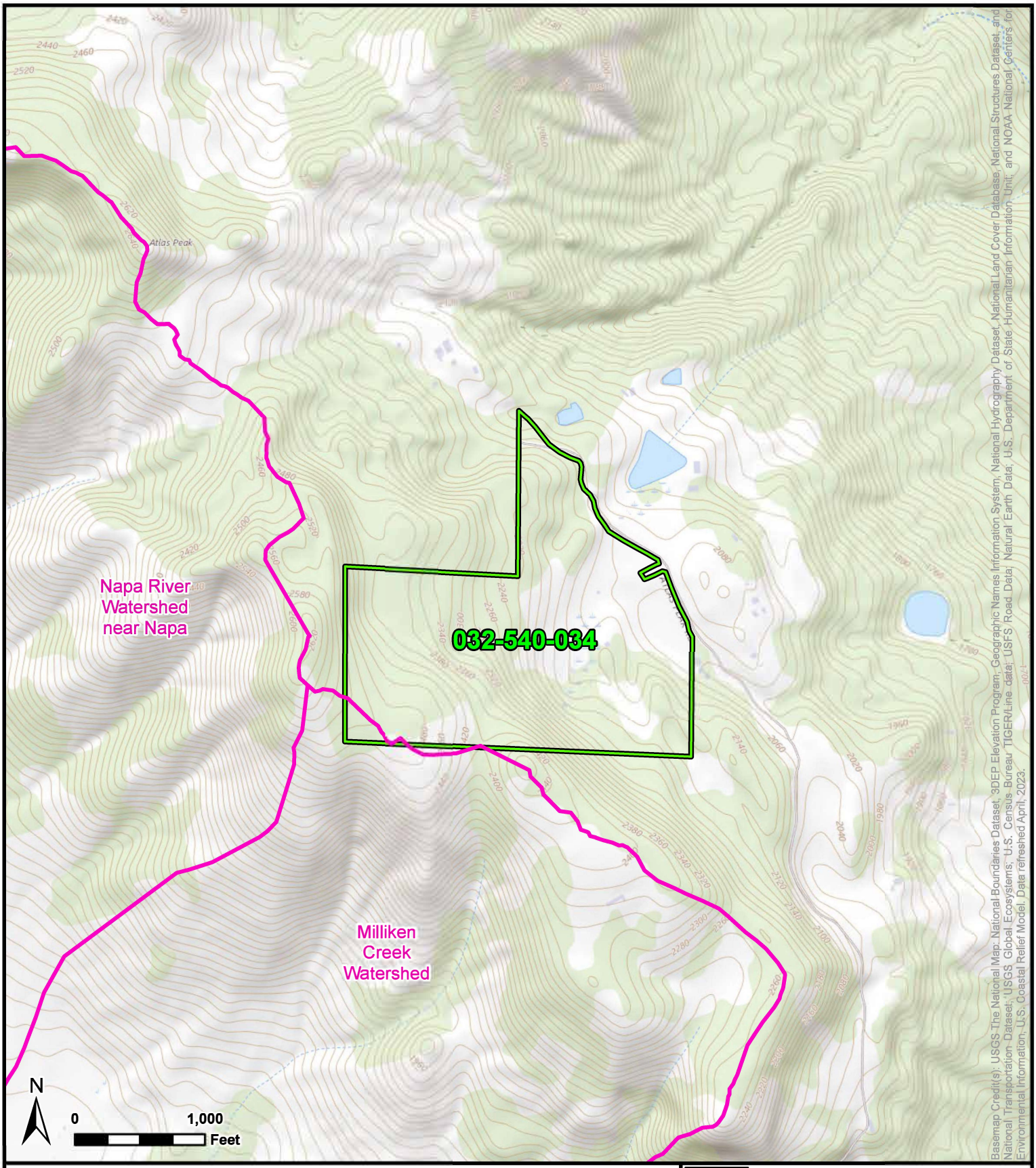
Notes: ND = No data available
ft bgs = feet below ground surface
in = inches
hrs = hours
gpm = gallons per minute
gpm/ft ddn = gallons per minute per foot of water level drawdown
Driller's log for House Well could not be located

Table 2
Estimated Recharge Based on Deep Percolation Assumptions for Slope Angle
Meka Vineyard

Region	Average Rainfall	Total Area	Percent of Area Divided by Slope	Area of Portion	Annual Rainfall Volume	Groundwater Recharge Assumptions and Estimates			
						Deep Percolation Occurs at Uniform Rate Over Entire Property		Deep Percolation Rate on Slopes >30°	
						Deep Percolation		Deep Percolation	
						Percentage	Annual Volume	Percentage	Annual Volume
	(in)	(acres)	%	(acres)	(AFY)	(%)	(AFY)	(%)	(AFY)
Meka Vineyard Property[1]	29.93	91.00	≤30° Slope: 98.9%	90.00	224.4	8.00%	18.0	8.00%	18.0
			>30° Slope: 1.1%	1.00	2.5	8.00%	0.2	0.00%	0.0
				Σ=91.00	Σ=226.9		Σ=18.2		Σ=18.0

Note: The value for deep percolation is calculated by setting the areas with slopes of >30° to 0% deep percolation.

[1] All areas reported for subject property are based on the County-assessed area reported in Napa County's GIS Parcel Layer (3/16/2023).



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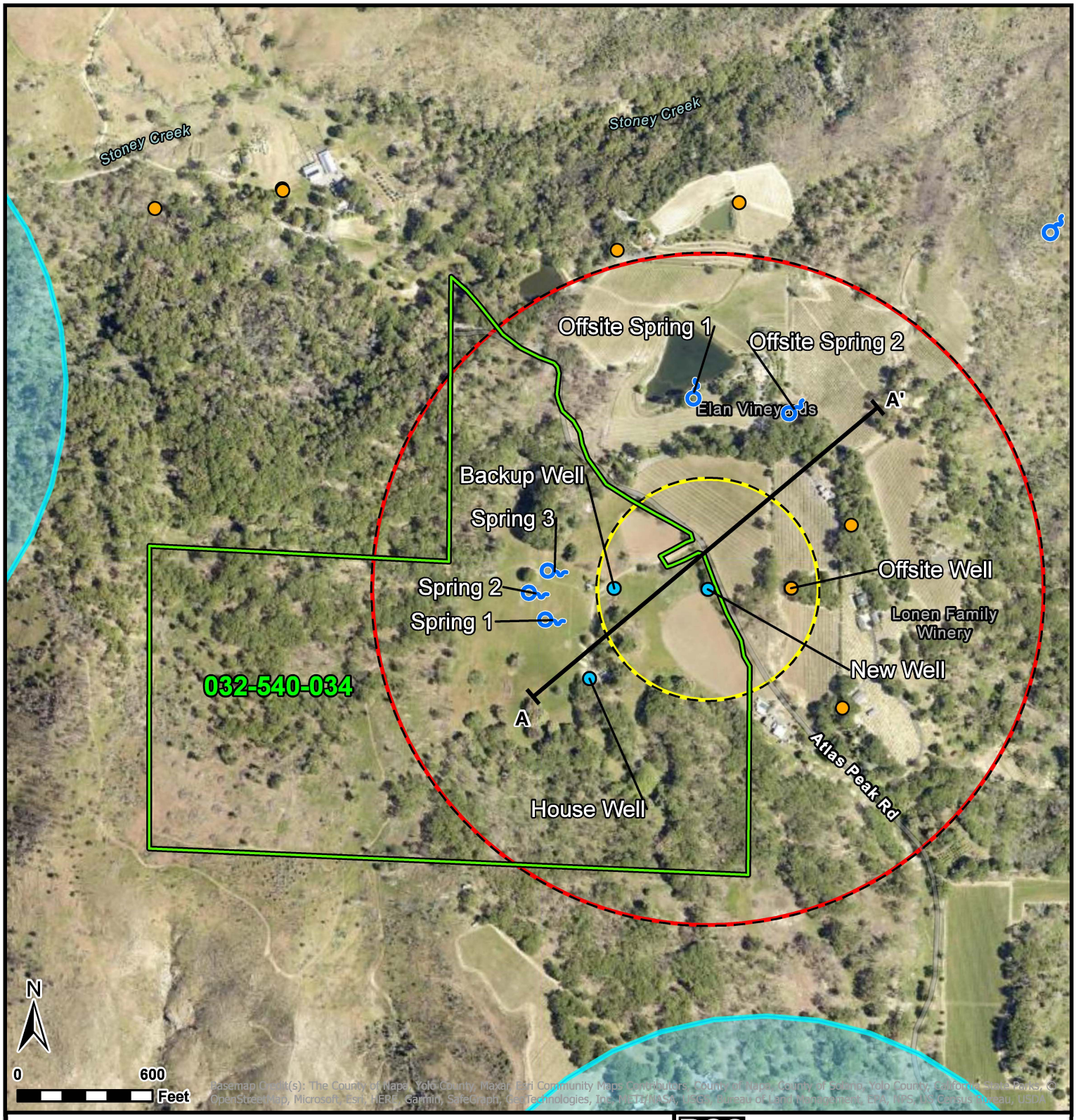
- Subject Parcel (Showing APN; Napa County, 3/16/2022)
- Napa County Watershed (LSCE & MBK, 2013)

RCS

Figure 1
Regional Map

RCS Job No. 785-NPA01 **October 2023**

Cartographic Presentation by K. Tipton. Spatial Reference Name: NAD 1983 StatePlane California II FIPS 0402 Feet



Basemap Credit(s): The County of Napa, Yolo County, Maxar, Esri Community Maps Contributors, County of Napa, County of Solano, Yolo County, California State Parks, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA

LEGEND

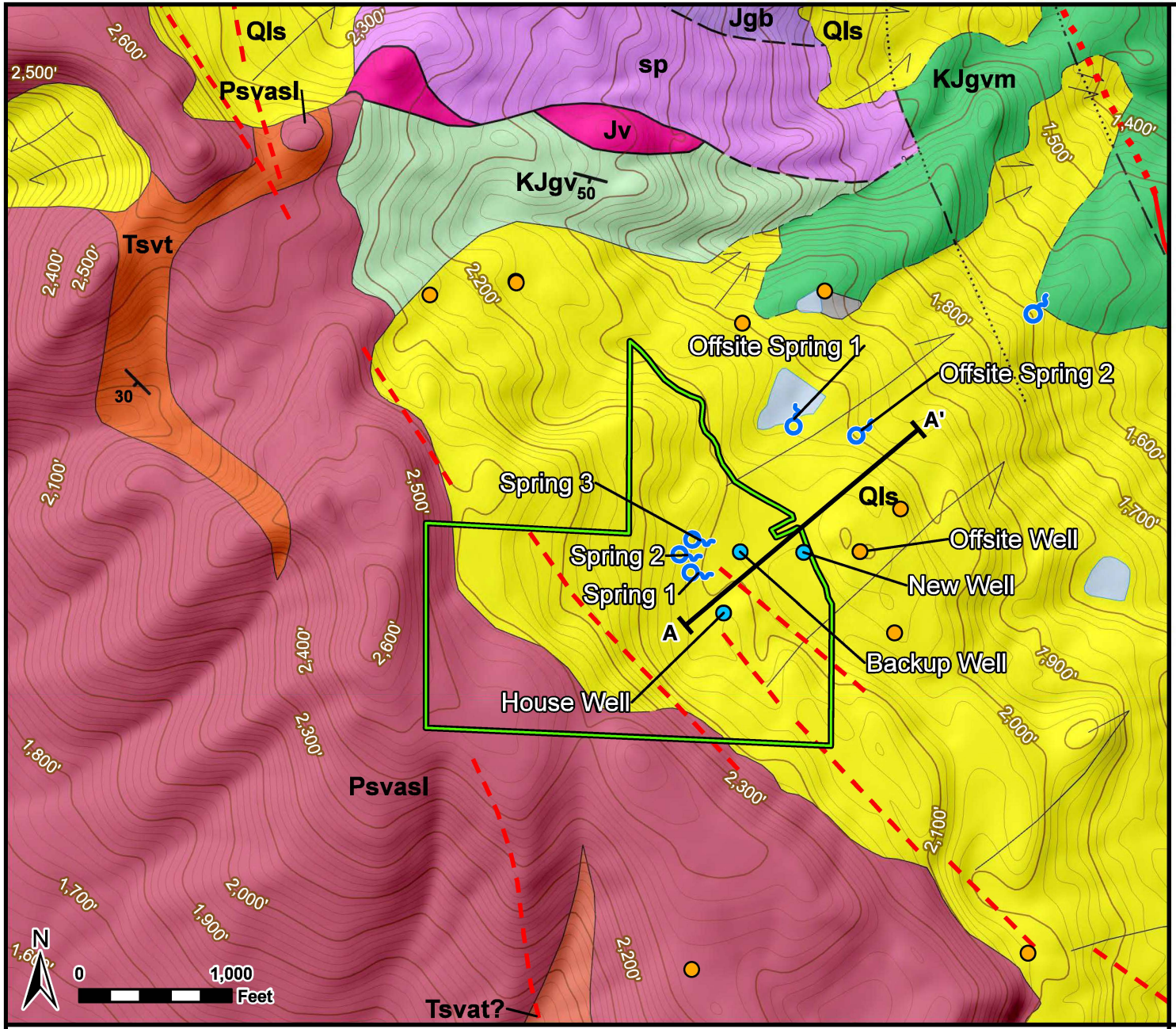
- Onsite Well
- Approximate Location of Known or Possible Spring, Based on Napa County Records and Communications with Owner of Nearby Springs
- Approximate Location of Known or Possible, Current or Former Offsite Well, Based on Napa County Records and Communications with Owner of Nearby Well
- 500-foot Buffer Zone Around New Well
- 1,500-foot Buffer Zone Around New Well
- Subject Parcel (Showing APN; Napa County, 3/16/2023)
- Significant Streams "1,500-foot" Buffer (PBES & LSCE, 2022b)
- Schematic Section A-A' (see Figure 5)

RCS

Figure 2
Property Map

RCS Job No. 785-NPA01 **October 2023**

Cartographic Presentation by K. Tipton. Spatial Reference Name: NAD 1983 StatePlane California II FIPS 0402 Feet



GEOLOGIC LEGEND

Recent Surficial Deposits

- Qls — Landslides (Holocene to Pleistocene)

Sonoma Volcanics

- Psvasl — Andesite lava flows of Stags Leap Volcanic Center (Pliocene)
- Tsvt — Sonoma Volcanics, tuff and sediments (Pliocene, Miocene)
- Tsvat — White pumiceous tuff of Atlas Peak in the Sonoma Volcanics

Great Valley Sequence

- KJgv — Great Valley Sequence, undivided (Late Cretaceous to Late Jurassic)
- KJgvm — Melange in the lower Great Valley Sequence

Coast Range Ophiolite

- Jv — Volcanic rocks within Coast Range Ophiolite (Jurassic)
- Jgb — Gabbro and diabase within Coast Range Ophiolite (Jurassic)
- sp — Serpentenite within Coast Range Ophiolite (Jurassic)

- Fault, inferred (USGS, 2020)
- Direction of landslide movement
- Geologic contact, approximately located
- Geologic contact, certain
- Fault, approximately located
- Fault, certain
- Fault, concealed
- Fault, inferred, queried
- 30 — Bedding orientation, showing dip angle

Geologic map adapted from: Wagner, D.L., and Gutierrez, C.I. (2017). Preliminary Geologic Map of the Napa and Bodega Bay 30' x 60' Quadrangles, California. California Geological Survey.

LEGEND

- Onsite Well
- Approximate Location of Known or Possible Spring, Based on Napa County Records and Communications with Owner of Nearby Springs
- Approximate Location of Known or Possible, Current or Former Offsite Well, Based on Napa County Records and Communications with Owner of Nearby Well
- Subject Parcel (Napa County, 3/16/23)
- 100-foot Elevation Contour (NAVD 88; USGS 3DEP, 2022)
- 20-foot Elevation Contour (NAVD 88; USGS 3DEP, 2022)
- Schematic Section A-A' (see Figure 5)

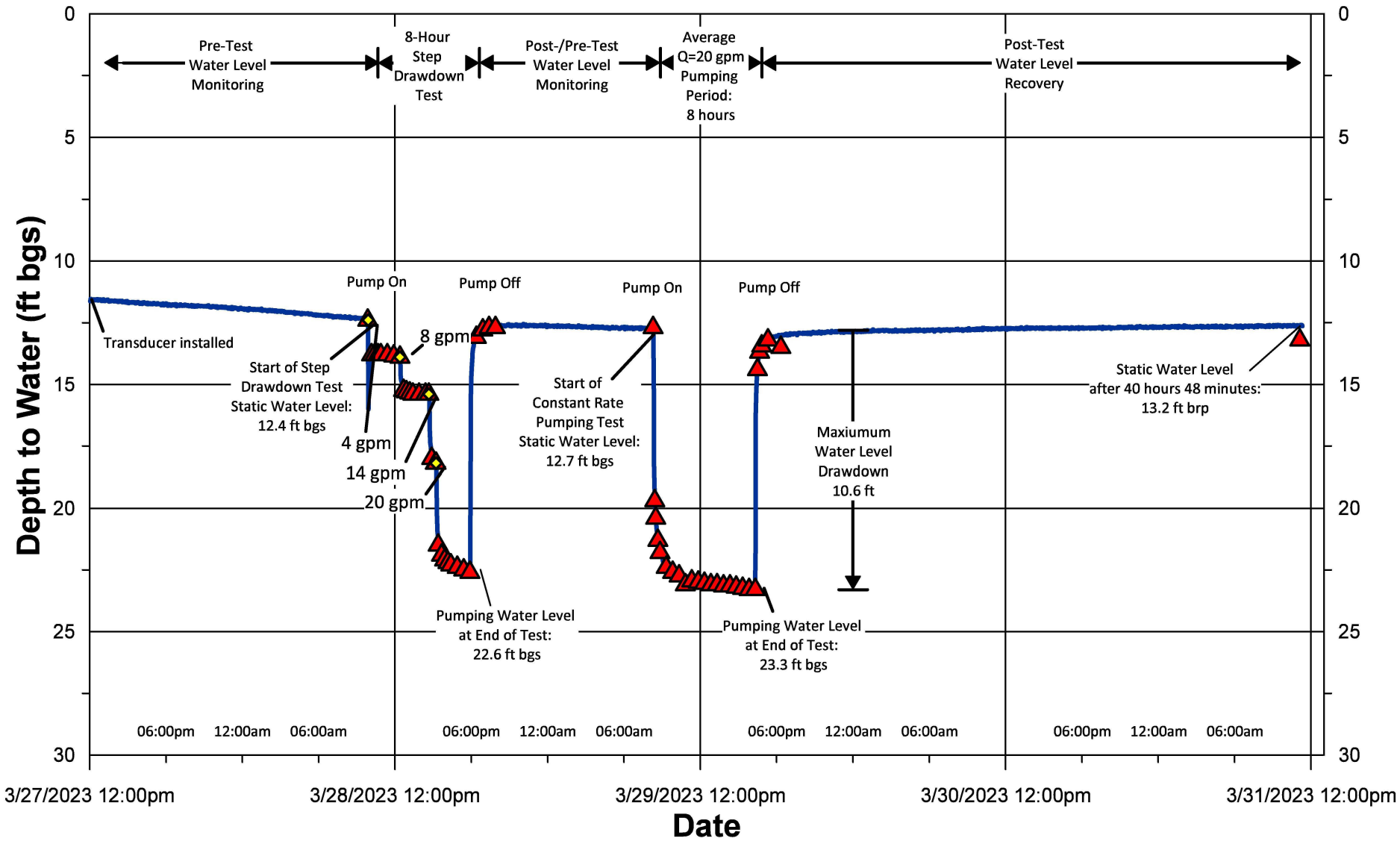
Note: All locations shown are approximate.

RCS

Figure 3
Geologic Map

RCS Job No. 785-NPA01 **October 2023**

Cartographic Presentation by K. Tipton. Spatial Reference Name: NAD 1983 StatePlane California II FIPS 0402 Feet



Legend

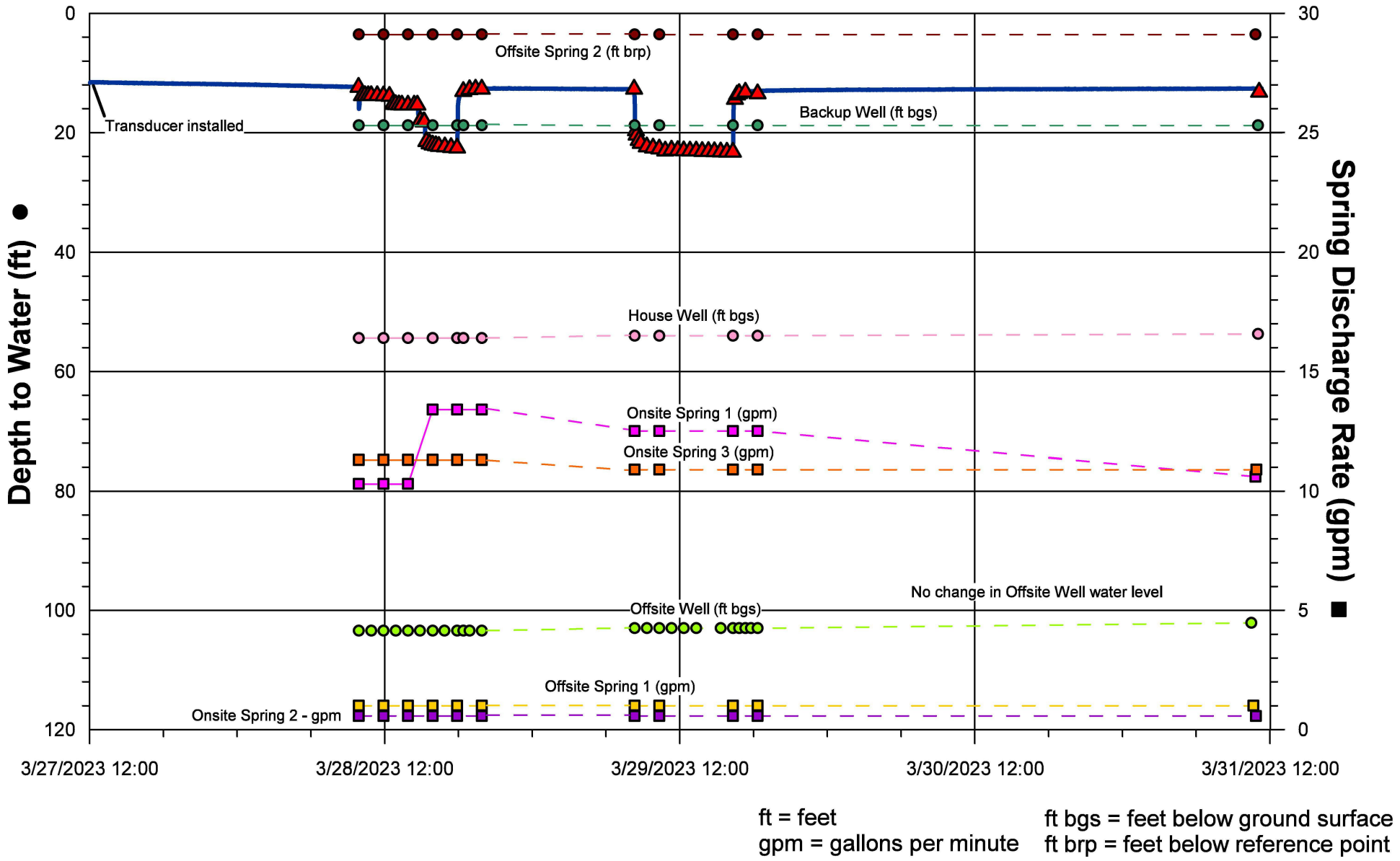
- New Well
- New Well Manual Measurements
- Start of each Step Drawdown Test Step

RCS

FIGURE 4A
HYDROGRAPH OF NEW WELL

RCS Job No. 785-NPA01

October 2023



ft = feet
gpm = gallons per minute

ft bgs = feet below ground surface
ft brp = feet below reference point

Legend

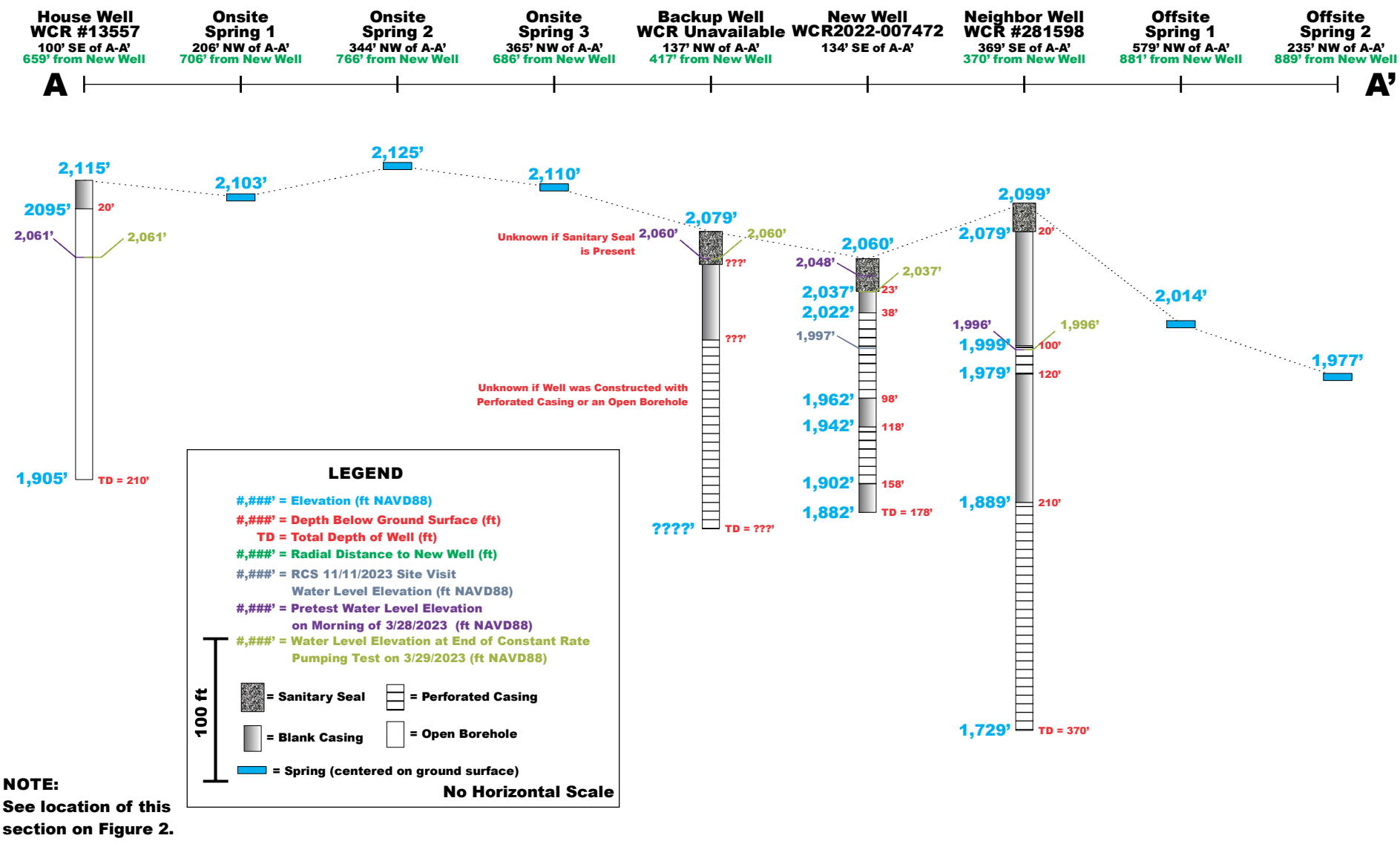
- New Well (ft bgs)
- New Well Manual Measurements (ft bgs)
- Onsite Spring 1 (gpm)
- Onsite Spring 2 (gpm)
- Onsite Spring 3 (gpm)
- House Well (ft bgs)
- Backup Well (ft bgs)
- Offsite Spring 1 (gpm)
- Offsite Spring 2 (ft brp)
- Offsite Well (ft bgs)

RCS

FIGURE 4B
HYDROGRAPH OF NEW WELL AND OSERVATION POINTS

RCS Job No. 785-NPA01

October 2023



NOTE:
See location of this section on Figure 2.

RICHARD C. SLADE & ASSOCIATES LLC
CONSULTING GROUNDWATER GEOLOGISTS
14051 Burbank Blvd., Suite 300
Sherman Oaks, CA 91401
Southern California (818) 506-0418
Northern California (707) 963-3914
Fax (818) 506-1343

FIGURE 5
SCHEMATIC CROSS SECTION ALONG A-A'

Job No. 785-NPA01 **October 2023**

TECHNICAL MEMORANDUM

APPENDIX

CALIFORNIA DEPARTMENT OF WATER RESOURCES
(DWR)
WELL COMPLETION REPORTS (DRILLER'S LOGS)
FOR
NEW WELL, ONSITE TEST HOLE, BACKUP WELL
AND OFFSITE WELL

NEW WELL

State of California

Well Completion Report

Form DWR 188 Submitted 7/6/2022

WCR2022-007472

Owner's Well Number 1-2022 | Date Work Began 06/24/2022 | Date Work Ended 07/05/2022

Local Permit Agency Napa County Planning Building and Environmental Services

Secondary Permit Agency | Permit Number E21-00740 | Permit Date 02/17/2022

Well Owner (must remain confidential pursuant to Water Code 13752)

Name Rao Meka

Mailing Address 848 Lincoln Blvd, #K

City Santa Monica | State Ca | Zip 90403

Planned Use and Activity

Activity New Well

Planned Use Water Supply Irrigation - Agriculture

Well Location

Address 4473 Atlas Peak RD

City Napa | Zip 94558 | County Napa

Latitude 38 Deg. 26 Min. 33 Sec. N | Longitude -122 Deg. 15 Min. 1 Sec. W

Dec. Lat. 38.4425 | Dec. Long. -122.2502778

Vertical Datum | Horizontal Datum WGS84

Location Accuracy | Location Determination Method

APN 032-540-034

Township 07 N

Range 04 W

Section 24

Baseline Meridian Mount Diablo

Ground Surface Elevation

Elevation Accuracy

Elevation Determination Method

Borehole Information

Orientation Vertical | Specify

Drilling Method Direct Rotary | Drilling Fluid Air

Total Depth of Boring 440 Feet

Total Depth of Completed Well 178 Feet

Water Level and Yield of Completed Well

Depth to first water 50 (Feet below surface)

Depth to Static Water Level 40 (Feet) | Date Measured 07/05/2022

Estimated Yield* 12 (GPM) | Test Type Air Lift

Test Length 2 (Hours) | Total Drawdown (feet)

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

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	15	red clay with embedded rock
15	20	tan volcanic ash
20	50	brown ash with embedded rock
50	85	hard fractured volcanic rock
85	130	gray sandy ash
130	140	tan volcanic tuff
140	150	hard tan volcanics
150	160	tan tuff
160	270	black sandy ash
270	305	tan sandy ash
305	425	gray clay
425	440	shale

NEW WELL

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	38	Blank	PVC	OD: 6.625 in. | SDR: 21 | Thickness: 0.316 in.	0.316	6.625			
1	38	98	Screen	PVC	OD: 6.625 in. | SDR: 21 | Thickness: 0.316 in.	0.316	6.625	Milled Slots	0.032	
1	98	118	Blank	PVC	OD: 6.625 in. | SDR: 21 | Thickness: 0.316 in.	0.316	6.625			
1	118	158	Screen	PVC	OD: 6.625 in. | SDR: 21 | Thickness: 0.316 in.	0.316	6.625	Milled Slots	0.032	
1	158	178	Blank	PVC	OD: 6.625 in. | SDR: 21 | Thickness: 0.316 in.	0.316	6.625			

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	4	Cement	Other Cement		concrete
4	23	Bentonite	Other Bentonite		grout
23	440	Other Fill	See description.		pea gravel

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	25	12
25	440	9

Certification Statement

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

Name: HUCKFELDT WELL DRILLING INC
Person, Firm or Corporation

994 KAISER ROAD (Address) | NAPA (City) | CA (State) | 94558 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 07/07/2022 (Date Signed) | 439746 (C-57 License Number)

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

N — Latitude Deg/Min/Sec

W — Longitude Deg/Min/Sec

TRS:

APN:

ONSITE TEST HOLE

State of California

Well Completion Report

Form DWR 188 Submitted 7/6/2022

WCR2022-007474

Owner's Well Number: TH #1 - 2022 | Date Work Began: 06/21/2022 | Date Work Ended: 07/01/2022

Local Permit Agency: Napa County Planning Building and Environmental Services

Secondary Permit Agency: | Permit Number: E21-00740 | Permit Date: 02/17/2022

Well Owner (must remain confidential pursuant to Water Code 13752)

Name: Rao Meka

Mailing Address: 848 Lincoln Blvd, #K

City: Santa Monica | State: Ca | Zip: 90403

Planned Use and Activity

Activity: Drill and Destroy

Planned Use: Destruction

Well Location

Address: 4473 Atlas Peak RD

City: Napa | Zip: 94558 | County: Napa

Latitude: 38 Deg. 26 Min. 40 Sec. N | Longitude: -122 Deg. 14 Min. 59 Sec. W

Dec. Lat.: 38.4444444 | Dec. Long.: -122.2497222

Vertical Datum: | Horizontal Datum: WGS84

Location Accuracy: | Location Determination Method:

APN: 032-540-034

Township: 07 N

Range: 04 W

Section: 24

Baseline Meridian: Mount Diablo

Ground Surface Elevation:

Elevation Accuracy:

Elevation Determination Method:

Borehole Information

Orientation: Vertical | Specify:

Drilling Method: Direct Rotary | Drilling Fluid: Air

Total Depth of Boring: 460 Feet

Total Depth of Completed Well: Feet

Water Level and Yield of Completed Well

Depth to first water: 110 (Feet below surface)

Depth to Static Water Level: 120 (Feet) | Date Measured: 07/01/2022

Estimated Yield*: 4 (GPM) | Test Type: Air Lift

Test Length: 4 (Hours) | Total Drawdown: (feet)

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

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	10	red clay with embedded rock
10	30	tan ash with embedded rock
30	35	hard gray volcanics
35	55	red ash with embedded rock
55	70	fractured black volcanics
70	120	fractured mixed volcanics
120	205	black sandy ash
205	250	green, gray sandy ash
250	260	hard green volcanics
260	280	gray sandy ash
280	460	90% shale / 10% clay

ONSITE TEST HOLE

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	3	Other Fill	See description.		soil
3	33	Bentonite	Other Bentonite		grout
33	460	Other Fill	See description.		pea gravel

Destruction Details:
Backfilled test hole from 460 feet to 33 feet with pea gravel. Installed bentonite grout from 33 feet to 3 feet. Backfilled to grade with natural material.

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	460	9

Certification Statement

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

Name: HUCKFELDT WELL DRILLING INC
Person, Firm or Corporation

994 KAISER ROAD (Address) | NAPA (City) | CA (State) | 94558 (Zip)

Signed: *electronic signature received* (C-57 Licensed Water Well Contractor) | 07/07/2022 (Date Signed) | 439746 (C-57 License Number)

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

N — Latitude Deg/Min/Sec

W — Longitude Deg/Min/Sec

TRS:

APN:

ORIGINAL
File with DWR

WATER WELL DRILLERS REPORT

(Sections 7079, 7080, 7081, 7082, Water Code)

THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

Do Not Fill In

No 13557

State Well No. _____

460 Other Well No 7N/4W-24

(2) LOCATION OF WELL:

County Napa Owner's number, if any 4473

Township, Range, and Section

Distance from cities, roads, railroads, etc.

(3) TYPE OF WORK (check):

New Well ☒ Deepening ☐ Reconditioning ☐ Destroying ☐

If destruction, describe material and procedure in Item 11.

(4) PROPOSED USE (check):

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

(5) EQUIPMENT:

Rotary ☒
Cable ☐
Other ☐

(6) CASING INSTALLED:

STEEL: OTHER:
SINGLE ☒ DOUBLE ☐

From ft.	To ft.	Diam.	Gage or Wall	Diameter of Bore	From ft.	To ft.
0	20	6"	12Ga.			

If gravel packed

Size of shoe or well ring:

Size of gravel:

Describe joint None

(7) PERFORATIONS OR SCREEN:

Type of perforation or name of screen None

From ft.	To ft.	Perf. per row	Rows per ft.	Size in. x in.
None				

(8) CONSTRUCTION:

Was a surface sanitary seal provided? Yes ☒ No ☐ To what depth ft.

Were any strata sealed against pollution? Yes ☐ No ☒ If yes, note depth of strata

From ft. to ft.

From ft. to ft.

Method of sealing

(9) WATER LEVELS:

Depth at which water was first found, if known 127' ft.

Standing level before perforating, if known 67' ft.

Standing level after perforating and developing 67' (No. perf.)

(10) WELL TESTS: Tested by Air Compressor

Drop test made? Yes ☐ No ☐ If yes, by whom? Drillers

20 gal./min. with 13 ft. drawdown after 3 hrs.

Temperature of water Was a chemical analysis made? Yes ☐ No ☒

Was electric log made of well? Yes ☐ No ☒ If yes, attach copy

(11) WELL LOG:

Total depth 210 ft. Depth of completed well 210 ft.

Formation: *Describe by color, character, size of material, and structure*

ft. to	ft.	
0	16	Soil & Boulders
16	39	Black Rock
39	53	White Pumice
53	77	Soft Red Rock
77	123	Pumice
123	135	Soft Red Rock
123	210	Black Rock

CONFIDENTAL LOG
Water Code Sec. 7080

FOR OFFICIAL USE ONLY

Work started June 8, 19 67 Completed June 10, 19 67

WELL DRILLER'S STATEMENT:

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

NAME Doshier-Gregson Well Drilling Service
(Person, firm, or corporation) (*Typed or printed*)

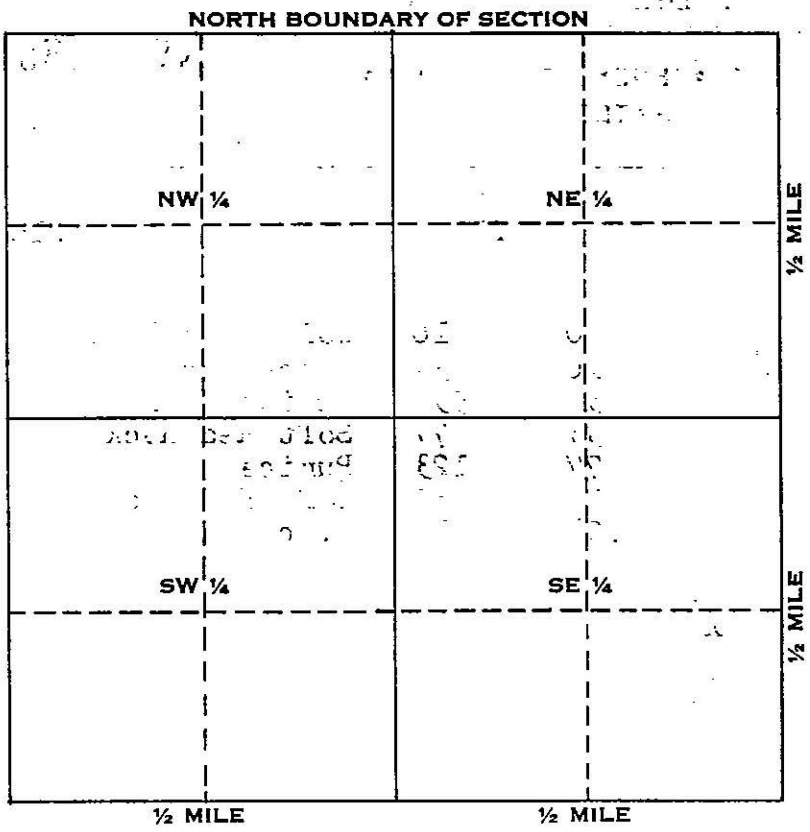
Address 5365 Napa-Vallejo Hwy.
Vallejo, California

[SIGNED] J. D. Doshier
(Well Driller)

License No. 208135 Dated June 20, 19 67

SKETCH LOCATION OF WELL ON REVERSE SIDE

56391-950 10-65 50M TRIP ① △ OSP

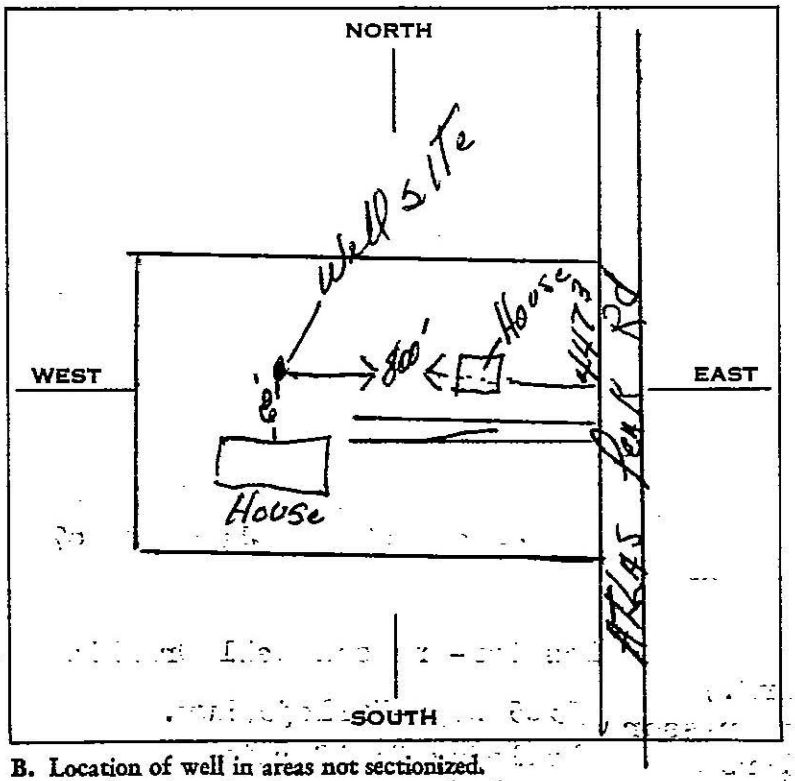


Township 7 N/S

Range 4 E/W

Section No. 24

A. Location of well in sectionized areas.
Sketch roads, railroads, streams, or other features as necessary.



B. Location of well in areas not sectionized.
Sketch roads, railroads, streams, or other features as necessary.
Indicate distances.

OFFSITE WELL

Environmental

Cover Sheet

APN	032 - 540 - 028 - 000
Permit #	
Program	WELL
DocType	WL
Street #	
Street Name	Atlas Peak
Year	1990



OFFSITE WELL

32-540-28 4/3/90 #2421

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

QUADRUPLICATE
Use to comply with local requirements

Do not fill in

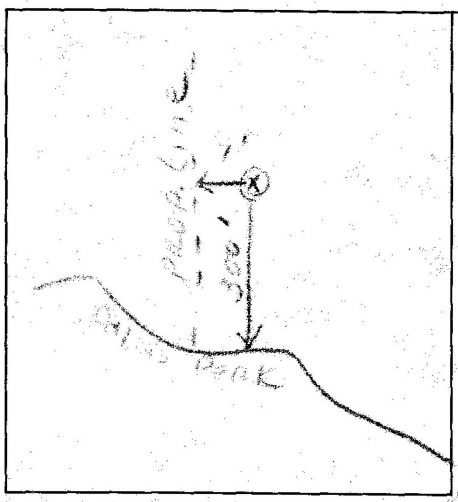
No. 281598

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

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 32-040-71
Well address if different from above Atlas Peak
Township _____ Range _____ Section _____
Distance from cities, roads, railroads, fences, etc. _____



WELL LOCATION SKETCH

(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)

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

(6) GRAVEL PACK:
Yes ☒ No ☐ Size Pea
Diameter of bore 12½
Packed from 20 to 370 ft.

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

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

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
0	100	6	200	100	120	.032
120	210	6	200	210	370	.032

(9) WELL SEAL:
Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 20 ft.
Were strata sealed against pollution? Yes ☐ No ☒ Interval _____ ft.
Method of sealing Cement and bentonite pellets

(10) WATER LEVELS:
Depth of first water, if known 150 ft.
Standing level after well completion 110 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 110 ft. At end of test 370 ft.
Discharge 20 gal/min after 3 hours Water temperature _____
Chemical analysis made? Yes ☒ No ☐ If yes, by whom? Calytest Lab
Was electric log made Yes ☐ No ☒ If yes, attach copy to this report

(12) WELL LOG: Total depth 390 ft. Completed depth 370 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	5	Brown clay
5	30	Black rock
30	110	Brown clay
110	150	Black clay
150	360	Blue green rock, sand
360	390	Blue clay and gravel

RECEIVED
APR 1 1990
DEPT. OF ENVIRONMENTAL MANAGEMENT

Work started 3/17/90 19__ Completed 3/24/90 19__

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 Doshier-Gregson, Inc. (Person, firm, or corporation) (Typed or printed)
Address 5365 Napa Vallejo Hwy
City Vallejo ZIP 96589
License No. 258826 Date of this report 3/29/90

DWR 188 (REV. 12-86) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM 86 96355

E22-00004 WELL PMT

SPRING DEVELOPMENT

Planning, Building & Environmental Services

1195 Third Street, 2nd Floor
Napa CA 94559
www.countyofnapa.org
Main: (707) 253-4417

David Morrison
Director

A Tradition of Stewardship
A Commitment to Service

WELL PERMIT

Planning, Building & Environmental Services - Environmental Health Division

Record Number: E22-00004
Parcel Number: 032-540-034-000

Submittal Date: 1/5/2022
Issued Date: 3/15/2022
Expiration Date: 3/14/2024

Application Type: Environmental / Online / Water Wells / Class I
Site Address: 4473 Atlas Peak rd RD, Napa 94558
Contact:
Owner: Rao Meka

WELL CONSTRUCTION

E22-00004

Proposed use:	Private		
To serve this parcel only?	Yes	If No, list other APN(s):	
Is this a replacement well?	No	Replacement reason:	
Additional Comments:			

Setbacks

Setbacks Met?	Yes				
Sewer Line:	372.00 ft	Septic Tank:	372.00 ft	Disposal Field:	372.00 ft
Additional Comments:					

Well Specifications

Casing Diameter:	1.25 in	Boring Diameter:	5.25 in	Annular Seal:	2.00 in
Sealing Method:	Tremie Pipe/Pump	Min. Seal Depth:	20 ft or first impervious layer, whichever is greater		
Sealing Material:	Neat Cement	Other Material:			
Additional Comments:					

TO PERMITEE:

By executing this application, the applicant agrees to comply with all conditions, inspections and comments of the issued permit and all federal, state and county code requirements applicable to this permit.

Issued By:

Staff Signature: Kim Withrow Date: 3-15-22

SPRING DEVELOPMENT

CONDITIONS/INSPECTIONS/COMMENTS

Record Number: E22-00004

Parcel Number: 032-540-034-000

Conditions:

Code	Condition
WELL-02	This permit covers the well construction only. A separate building permit must be obtained for the installation/construction of any pump, electrical, plumbing and/or mechanical features. Failure to obtain a building permit for that work is cause for enforcement action. Questions related to building permit requirements should be directed to the building division.
WELL-01	A copy of the State of California Well Completion Report must be submitted within 60 days of well completion.
STRM-02	The owner shall comply with the Napa Countywide Stormwater Pollution Prevention Program, "Erosion and Sediment Control Measures for Construction Projects". Failure to comply with best management practices for erosion and sediment control will result in issuance of a stop-work order.

Inspections: **Inspected By:** **Date:**

Inspection Type

Construction Inspection 4/8/22 Horizontal well, 30' seal, cement w/ Dolfin

Comments:

Date	Comment
3/15/2022	Call 253-4135 at least 48 hours in advance during normal business hours to schedule inspection requests. Inspections are taken on a first-come-first-served basis so if you need a specific date and time be sure to call well in advance
	Any deviation from these permit specifications without prior approval from the Department of Environmental Management will be cause for stopping work until the changes are fully justified and approved.
	Well permits are issued only to licensed well drillers. A copy of the well driller's license (C-57) must be on file with DEM.
	If a claim is to be submitted for a refund, per County Code, a 25% processing fee will be retained. Such claims must be made within one year of the date on the receipt.

SPRING DEVELOPMENT



PREPARED BY: Tanner Alberts
TANNER ALBERTS

SITE PLAN
SCALE: 1"=300'

CLEARHEART DRILLING
555 W. COLLEGE AVENUE
SANTA ROSA, CA 95401

SoCal

APN 032-549-034

RAO MEKA
4473 ATLAS PEAK ROAD
NAPA, CA 94558

DATE 01.02.2022
SCALE NTS
DRAWN BY TJA
JOB MEKA
SHEET S-1

SPRING DEVELOPMENT

Out of Water

Planning, Building & Environmental Services

WELL CONSTRUCTION APPLICATION

1195 Third Street, Suite 210
Napa, CA 94559
www.countyofnapa.org

A Tradition of Stewardship
A Commitment to Service

Date: 12/21/2021 **Well Permit Number:** _____

David Morrison
Director

PROPERTY OWNER INFORMATION:

Name: Rao Meka

Mailing Address: 4473 atlas Peak rd,
Napa 94558

Site Address: 4473 atlas Peak rd
Napa 94558

APN: 032-540-034

Phone # NA

WELL DRILLER INFORMATION:

Company Name: Clear heart Drilling

Well Driller's License Number: 780357

Contact Person: Gina Pearson

Address: 555b West College Ave
Santa Rosa, CA 95401

E-Mail: gina@clearheartdrilling.com

Phone # 707-568-6095

TYPE OF PERMIT (circle one): ☑ Class 1A ☐ Class 1B ☐ Class II ☐ Deepening ☐ Reconstruction Other: _____

PROPOSED USE (circle one): ☑ Private ☐ Public

To Serve This Parcel Only: Yes No If no, list other APN(s): _____

Is there access to the proposed well site? yes

Located in MST: Yes No
(If yes, please explain on reverse.)

Located in Flood Zone: Yes No

HazMat within 1500 feet: Yes No

SETBACKS TO WELL:

Sewer Line: 100+ feet Septic Tank: 100+ feet Disposal Field: 100+ feet

WELL SPECIFICATIONS:

Casing Diameter 1.25 inches Boring Diameter 5.25 inches Annular Seal: 2 inches

Minimum Seal Depth: 20-50 feet Sealing Material: cement grout Sealing Method: bentonite

Well Casing Material: Sch 80 pvc Will casing extend 8" above grade? Yes ☑ No ☒

A SCALED MAP OF THE WELL LOCATION SHALL BE ATTACHED TO THIS APPLICATION. THE MAP SHALL INCLUDE THE DISTANCE FROM THE WELL TO PROPERTY LINES, SEWAGE DISPOSAL SYSTEMS, STRUCTURES, ETC AND SHALL INCLUDE ALL OTHER PERTINENT INFORMATION SPECIFIC TO THIS WELL.

SPRING DEVELOPMENT

APPLICATION
THIS IS NOT A PERMIT

Worker's Compensation Coverage (please check one):

☑ A Certificate of current Worker's Compensation Insurance Coverage is on file with the State of California, Department of Consumer Affairs, Contractors State License Board.

OR

☐ 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 of California.

By executing this application, the undersigned agrees to comply with all conditions, inspections and comments of the issued permit and all federal, state and county code requirements applicable to this permit. Furthermore, I understand that the Department of Environmental Health in no way guarantees trouble-free operation of the well and that future repair or the drilling of a new well may be necessary.

Please sign below:

Signature: Gary Soden Date: 12/21/2021

Please print your name: Gary Soden

SPRING DEVELOPMENT



SPRING DEVELOPMENT



TECHNICAL MEMORANDUM

APPENDIX

MARCH 2023 PUMPING TESTS
OF THE NEW WELL
BY
RAY'S WELL TESTING SERVICE, INC.

Phone: 707 823 3191 **Fax:** 707 317 0057 **Email:** rayswelltesting@gmail.com **Lic#**:903708
Address: 4853 Vine Hill Rd, Sebastopol Ca 95472

Date: 03/28/23
Report #: 14474-SD
Report By: Cody Monday & Zack Mikalonis

Subject Property Address: 4473 Atlas Peak Rd, Napa CA
Customer Name: Rao Meka

WELL DATA:

Location/Description of well:	New Well – Lower Field
Type of Well:	Drilled
Depth of Well:	178 Feet
Diameter of Well Casing:	5" PVC
Sanitary Seal (plate seal at top of well):	Capped
Annular Well Seal (in ground seal of bore hole):	23 Feet – Bentonite & Cement

PUMP DATA:

Pump HP and Type:	Test Pump
Depth of Pump Suction:	160 Feet
Size of Tee at Well Head:	Test Pump
Submersible Cable Size:	Test Pump
Water Level Control:	Test Pump
Backpressure Test:	Test Pump

WELL PRODUCTION SUMMARY (see next page for pumping log):

Length of Test: 8 Hours
Type of Test: Step Drawdown Test

Static Water Level:	12.4 Feet	**Starting Flow**	4 GPM
Water Level Drawdown:	10.2 Feet		
Final Pumping Level:	22.6 Feet	**Final Flow**	20 GPM

WATER LEVEL RECOVERY SUMMARY:

Pre Test Static Water Level:	12.4 Feet
Post Test Static Water Level:	12.7 Feet
Water Level Drawdown:	10.2 Feet
Water Level Recovery:	9.9 Feet
Water Level Recovery as % of Drawdown:	97.06%
Length Between End of Test and Recovery:	2 Hours

WELL PRODUCTION DATA & PUMPING LOG:

Date	Time	Interval	Water Level	Appearance	Sulfur Odor	Sand	GPM	Totalizer
03/28/23	09:55 AM	0 Minutes	12.4	Yellow Tint	No	Pinch	4	189406.7
03/28/23	10:10 AM	15 Minutes	13.8	Yellow Tint	No	Pinch	4	
03/28/23	10:25 AM	15 Minutes	13.8	Orange	No	Pinch	4	
03/28/23	10:40 AM	15 Minutes	13.8	Orange	No	Trace	4	
03/28/23	10:55 AM	15 Minutes	13.8	Yellow	No	No	4	
03/28/23	11:25 AM	30 Minutes	13.8	Orange	No	No	4	
03/28/23	11:55 AM	30 Minutes	13.85	Yellow Tint	No	No	4	
03/28/23	12:25 PM	30 Minutes	13.9	Yellow	No	Trace	8	190002.2
03/28/23	12:40 PM	15 Minutes	15.25	Yellow Tint	No	No	8	
03/28/23	12:55 PM	15 Minutes	15.3	Yellow Tint	No	No	8	
03/28/23	01:10 PM	15 Minutes	15.35	Yellow Tint	No	No	8	
03/28/23	01:25 PM	15 Minutes	15.4	Yellow Tint	No	No	8	
03/28/23	01:55 PM	30 Minutes	15.4	Yellow Tint	No	No	8	
03/28/23	02:25 PM	30 Minutes	15.4	Yellow Tint	No	No	8	
03/28/23	02:40 PM	15 Minutes	15.4	Orange	No	Trace	14	191079.2
03/28/23	02:55 PM	15 Minutes	18	Orange	No	Trace	14	
03/28/23	03:10 PM	15 Minutes	18.2	Orange	No	Trace	14	
03/28/23	03:15 PM	5 Minutes	18.2	Orange	No	Trace	20	191569.2
03/28/23	03:25 PM	10 Minutes	21.5	Orange	No	Trace	20	
03/28/23	03:40 AM	15 Minutes	21.9	Orange	No	Trace	20	
03/28/23	03:55 PM	15 Minutes	22.1	Orange	No	Trace	20	
03/28/23	04:10 AM	15 Minutes	22.2	Orange	No	Trace	20	
03/28/23	04:25 PM	15 Minutes	22.3	Orange	No	Trace	20	
03/28/23	04:55 PM	30 Minutes	22.4	Orange	No	Trace	20	
03/28/23	05:25 PM	30 Minutes	22.5	Orange	No	Trace	20	
03/28/23	05:55 PM	30 Minutes	22.6	Orange	No	Trace	20	194767.7

Final Pumping Level: 22.6 Feet
Final Flow Rate: 20 GPM

WATER LEVEL RECOVERY DATA:

Date	Time	Interval	Water Level	Recovery %
03/28/23	06:25 PM	30 Minutes	13.1	76.67%
03/28/23	06:55 PM	30 Minutes	12.8	86.67%
03/28/23	07:25 PM	30 Minutes	12.7	97.06%
03/28/23	07:55 PM	30 Minutes	12.7	97.06%

Final post test static level measurement: 12.7 Feet
Final Water Level Recovery as % of Drawdown: 97.06%
Length of time between end of test and recovery: 2 Hours

Water levels and well depth are measured as feet below top of well casing unless otherwise noted.

DISCLAIMER:
Results of well production are accurate only at time of test. We cannot predict future production or water yield.

ONSITE MONITORING DURING STEP DRAWDOWN TEST

ONSITE SPRING #1

DATE	TIME	GPM	COLOR
3/28/23 (BEG)	9:55 AM	10.3	SLIGHT YELLOW TINT
3/28/23 (2 HOURS)	11:55 AM	10.3	SLIGHT YELLOW TINT
3/28/23 (4 HOURS)	1:55 PM	10.3	SLIGHT YELLOW TINT
3/28/23 (6 HOURS)	3:55 PM	13.4	SLIGHT YELLOW TINT
3/28/23 (END)	5:55 PM	13.4	SLIGHT YELLOW TINT
3/28/23 (END RECOVERY)	7:55 PM	13.4	SLIGHT YELLOW TINT

ONSITE SPRING #2

DATE	TIME	GPM	COLOR
3/28/23 (BEG)	9:55 AM	0.57	CLEAR
3/28/23 (2 HOURS)	11:55 AM	0.57	CLEAR
3/28/23 (4 HOURS)	1:55 PM	0.57	CLEAR
3/28/23 (6 HOURS)	3:55 PM	0.57	CLEAR
3/28/23 (END)	5:55 PM	0.57	CLEAR
3/28/23 (END RECOVERY)	7:55 PM	0.57	CLEAR

ONSITE SPRING #3

DATE	TIME	GPM	COLOR
3/28/23 (BEG)	9:55 AM	11.3	CLEAR
3/28/23 (2 HOURS)	11:55 AM	11.3	CLEAR
3/28/23 (4 HOURS)	1:55 PM	11.3	CLEAR
3/28/23 (6 HOURS)	3:55 PM	11.3	CLEAR
3/28/23 (END)	5:55 PM	11.3	CLEAR
3/28/23 (END RECOVERY)	7:55 PM	11.3	CLEAR

ONSITE HOUSE WELL

DATE	TIME	WATER LEVEL
3/28/23 (BEG)	9:55 AM	54.4 FEET
3/28/23 (2 HOURS)	11:55 AM	54.4 FEET
3/28/23 (4 HOURS)	1:55 PM	54.4 FEET
3/28/23 (6 HOURS)	3:55 PM	54.4 FEET
3/28/23 (END)	5:55 PM	54.4 FEET
3/28/23 1 HOUR	6: 25 PM	54.4 FEET
3/28/23 (END RECOVERY)	7:55 PM	54.4 FEET

ONSITE LOWER WELL

DATE	TIME	WATER LEVEL
3/28/23 (BEG)	9:55 AM	18.8 FEET
3/28/23 (2 HOURS)	11:55 AM	18.8 FEET
3/28/23 (4 HOURS)	1:55 PM	18.8 FEET
3/28/23 (6 HOURS)	3:55 PM	18.8 FEET
3/28/23 (END)	5:55 PM	18.8 FEET
3/28/23 1 HOUR	6:25 PM	18.8 FEET
3/28/23 (END RECOVERY)	7:55 PM	18.8 FEET

OFFSITE MONITORING DURING STEP DRAWDOWN TEST

OFFSITE SPRING #1 @ 4500 ATLAS PEAK

DATE	TIME	GPM	COLOR
3/28/23 (BEG)	9:55 AM	1	CLEAR
3/28/23 (2 HOURS)	11:55 AM	1	CLEAR
3/28/23 (4 HOURS)	1:55 PM	1	CLEAR
3/28/23 (6 HOURS)	3:55 PM	1	CLEAR
3/28/23 (END)	5:55 PM	1	CLEAR
3/28/23 (END RECOVERY)	7:55 PM	1	SLIGHT CLEAR TINT

OFFSITE SPRING #2 @ 4500 ATLAS PEAK

DATE	TIME	WATER LEVEL	OVER FLOWING (Y OR N)
3/28/23 (BEG)	9:55 AM	42 -5/8 INCHES	YES
3/28/23 (2 HOURS)	11:55 AM	42 -5/8 INCHES	YES
3/28/23 (4 HOURS)	1:55 PM	42 -5/8 INCHES	YES
3/28/23 (6 HOURS)	3:55 PM	42 -5/8 INCHES	YES
3/28/23 (END)	5:55 PM	42 -5/8 INCHES	YES
3/28/23 (END RECOVERY)	7:55 PM	42 -5/8 INCHES	YES

*WATER LEVEL WAS MEASURED FROM TOP OF CISTERN WITH TAPE MEASURE.

OFFSITE WELL @ 4450 ATLAS PEAK

DATE	TIME	WATER LEVEL
3/28/23 (BEG)	9:55 AM	103.4 FEET
3/28/23 (1 HOUR)	10:55 AM	103.4 FEET
3/28/23 (2 HOUR)	11:55 AM	103.4 FEET
3/28/23 (3 HOUR)	12:55 PM	103.4 FEET
3/28/23 (4 HOUR)	1:55 PM	103.4 FEET
3/28/23 (5 HOUR)	2:55 PM	103.4 FEET
3/28/23 (6 HOUR)	3:55 PM	103.4 FEET
3/28/23 (7 HOUR)	4:55 PM	103.4 FEET
3/28/23 (END)	5:55 PM	103.4 FEET
3/28/23 (30 MINUTES RECOVERY)	6:25 PM	103.4 FEET
3/28/23 (1 HOUR RECOVERY)	6:55 PM	103.4 FEET
3/28/23 (1.5 HOUR RECOVERY)	7:25 PM	103.4 FEET
3/28/23 (END RECOVERY)	7:55 PM	103.4 FEET

Phone: 707 823 3191 **Fax:** 707 317 0057 **Email:** rayswelltesting@gmail.com **Lic#**:903708
Address: 4853 Vine Hill Rd, Sebastopol Ca 95472

Date: 03/29/23
Report #: 14474-CR
Report By: Cody Monday & Zack Mikalonis

Subject Property Address: 4473 Atlas Peak Rd, Napa CA
Customer Name: Rao Meka

WELL DATA:

Location/Description of well:	New Well – Lower Field
Type of Well:	Drilled
Depth of Well:	178 Feet
Diameter of Well Casing:	5" PVC
Sanitary Seal (plate seal at top of well):	Capped
Annular Well Seal (in ground seal of bore hole):	23 Feet – Bentonite & Cement

PUMP DATA:

Pump HP and Type:	Test Pump
Depth of Pump Suction:	160 Feet
Size of Tee at Well Head:	Test Pump
Submersible Cable Size:	Test Pump
Water Level Control:	Test Pump
Backpressure Test:	Test Pump

WELL PRODUCTION SUMMARY (see next page for pumping log):

Length of Test: 8 Hours
Type of Test: Constant Rate

Static Water Level:	12.7 Feet	**Starting Flow**	20 GPM
Water Level Drawdown:	10.6 Feet		
Final Pumping Level:	23.3 Feet	**Final Flow**	20 GPM

WATER LEVEL RECOVERY SUMMARY:

Pre Test Static Water Level:	12.7 Feet
Post Test Static Water Level:	13.2 Feet
Water Level Drawdown:	10.6 Feet
Water Level Recovery:	10.1 Feet
Water Level Recovery as % of Drawdown:	95.28%
Length Between End of Test and Recovery:	40 Hrs 48 Mins

WELL PRODUCTION DATA & PUMPING LOG:

Date	Time	Interval	Water Level	Appearance	Sulfur Odor	Sand	GPM	Totalizer
03/29/23	08:20 AM	0 Minutes	12.7	Orange Tint	No	Pinch	20	194767.7
03/29/23	08:25 AM	5 Minutes	19.7	Orange Tint	No	Pinch	20	
03/29/23	08:30 AM	5 Minutes	20.4	Orange Tint	No	Pinch	20	
03/29/23	08:35 AM	5 Minutes	21	Orange Tint	No	Trace	20	
03/29/23	08:40 AM	5 Minutes	21.3	Orange Tint	No	Trace	20	
03/29/23	08:45 AM	5 Minutes	21.6	Orange Tint	No	Trace	20	
03/29/23	08:50 AM	5 Minutes	21.8	Orange Tint	No	Trace	20	
03/29/23	09:05 AM	15 Minutes	22.2	Orange Tint	No	Trace	20	
03/29/23	09:20 AM	15 Minutes	22.4	Orange Tint	No	No	20	
03/29/23	09:50 AM	30 Minutes	22.6	Orange Tint	No	No	20	
03/29/23	10:20 AM	30 Minutes	22.75	Orange Tint	No	No	20	
03/29/23	10:50 AM	30 Minutes	22.85	Orange Tint	No	No	20	
03/29/23	11:20 AM	30 Minutes	22.95	Orange Tint	No	No	20	
03/29/23	11:50 AM	30 Minutes	23	Orange Tint	No	No	20	
03/29/23	12:20 PM	30 Minutes	23.05	Orange Tint	No	No	20	199577.7
03/29/23	12:50 PM	30 Minutes	23.1	Orange Tint	No	No	20	
03/29/23	01:20 PM	30 Minutes	23.1	Orange Tint	No	No	20	
03/29/23	01:50 PM	30 Minutes	23.15	Orange Tint	No	No	20	
03/29/23	02:20 PM	30 Minutes	23.15	Orange Tint	No	No	20	
03/29/23	02:50 PM	30 Minutes	23.2	Orange Tint	No	No	20	
03/29/23	03:20 PM	30 Minutes	23.25	Orange Tint	No	No	20	
03/29/23	03:50 PM	30 Minutes	23.3	Orange Tint	No	No	20	
03/29/23	04:20 PM	30 Minutes	23.3	Orange Tint	No	No	20	204380.7

Final Pumping Level: 23.3 Feet
Final Flow Rate: 20 GPM

WATER LEVEL RECOVERY DATA:

Date	Time	Interval	Water Level	Recovery %
03/29/23	04:30 PM	10 Minutes	14.4	83.96%
03/29/23	04:40 PM	10 Minutes	13.7	90.57%
03/29/23	04:50 PM	10 Minutes	13.45	92.92%
03/29/23	05:20 PM	30 Minutes	13.2	95.28%
03/29/23	05:50 PM	30 Minutes	13.1	96.23%
03/29/23	06:20 PM	30 Minutes	13.05	96.70%
03/31/23	11:08 AM	40 Hrs 48 Mins	13.2	95.28%

Final post test static level measurement: 13.2 Feet
Final Water Level Recovery as % of Drawdown: 95.28%
Length of time between end of test and recovery: 40 Hrs 48 Mins

Water levels and well depth are measured as feet below top of well casing unless otherwise noted.

DISCLAIMER:
Results of well production are accurate only at time of test. We cannot predict future production or water yield.

WATER QUALITY: (The following samples are being analyzed, please refer to follow up report)
Analysis Choice: Basic Residential&Irrigation **Turnaround:** Standard

ONSITE MONITORING DURING CONSTANT RATE TEST

ONSITE SPRING #1

DATE	TIME	GPM	COLOR
3/29/23 (BEG)	8:20 AM	12.5	SLIGHT YELLOW TINT
3/29/23 (2 HOURS)	10:20 AM	12.5	SLIGHT YELLOW TINT
3/29/23 (4 HOURS)	12:20 PM	12.5	SLIGHT YELLOW TINT
3/29/23 (6 HOURS)	2:20 PM	12.5	SLIGHT YELLOW TINT
3/29/23 (END)	4:20 PM	12.5	SLIGHT YELLOW TINT
3/29/23 (END RECOVERY)	6:20 PM	12.5	SLIGHT YELLOW TINT
3/31/23 (END OF TEST)	10:50 AM	10.6	SLIGHT YELLOW TINT

ONSITE SPRING #2

DATE	TIME	GPM	COLOR
3/29/23 (BEG)	8:20 AM	0.57	CLEAR
3/29/23 (2 HOURS)	10:20 AM	0.57	CLEAR
3/29/23 (4 HOURS)	12:20 PM	0.57	CLEAR
3/29/23 (6 HOURS)	2:20 PM	0.57	CLEAR
3/29/23 (END)	4:20 PM	0.57	CLEAR
3/29/23 (END RECOVERY)	6:20 PM	0.57	CLEAR
3/31/23 (END OF TEST)	10:52 AM	0.57	CLEAR

ONSITE SPRING #3

DATE	TIME	GPM	COLOR
3/29/23 (BEG)	8:20 AM	10.9	CLEAR
3/29/23 (2 HOURS)	10:20 AM	10.9	CLEAR
3/29/23 (4 HOURS)	12:20 PM	10.9	CLEAR
3/29/23 (6 HOURS)	2:20 PM	10.9	CLEAR
3/29/23 (END)	4:20 PM	10.9	CLEAR
3/29/23 (END RECOVERY)	6:20 PM	10.9	CLEAR
3/31/23 (END OF TEST)	10:55 AM	10.9	CLEAR

ONSITE HOUSE WELL

DATE	TIME	WATER LEVEL
3/29/23 (BEG)	8:20 AM	54 FEET
3/29/23 (2 HOURS)	10:20 AM	54 FEET
3/29/23 (4 HOURS)	12:20 PM	54 FEET
3/29/23 (6 HOURS)	2:20 PM	54 FEET
3/2923 (END)	4:20 PM	54 FEET
3/29/23 1 HOUR	5:20 PM	54 FEET
3/29/23 (END RECOVERY)	6:20 PM	54 FEET
3/31/23 (END OF TEST)	11:05 AM	53.7 FEET

ONSITE LOWER WELL

DATE	TIME	WATER LEVEL
3/29/23 (BEG)	8:20 AM	18.8 FEET
3/29/23 (2 HOURS)	10:20 AM	18.8 FEET
3/29/23 (4 HOURS)	12:20 PM	18.8 FEET
3/29/23 (6 HOURS)	2:20 PM	18.8 FEET
3/29/23 (END)	4:20 PM	18.8 FEET
3/29/23 1 HOUR	5:20 PM	18.8 FEET
3/29/23 (END RECOVERY)	6:20 PM	18.8 FEET
3/31/23 (END OF TEST)	11:05 AM	18.8 FEET

OFFSITE MONITORING DURING CONSTANT RATE TEST

OFFSITE SPRING #1 @ 4500 ATLAS PEAK

DATE	TIME	GPM	COLOR
3/29/23 (BEG)	8:20 AM	1	CLEAR
3/29/23 (2 HOURS)	10:20 AM	1	CLEAR
3/29/23 (4 HOURS)	12:20 PM	1	CLEAR
3/29/23 (6 HOURS)	2:20 PM	1	CLEAR
3/29/23 (END)	4:20 PM	1	CLEAR
3/29/23 (END RECOVERY)	6:20PM	1	CLEAR
3/31/23 (END OF TEST)	10:40 AM	1	CLEAR

OFFSITE SPRING #2 @ 4500 ATLAS PEAK

DATE	TIME	WATER LEVEL (W/TAPE)	OVER FLOWING (Y OR N)
3/29/23 (BEG)	8:20 AM	42 -5/8 INCHES	YES
3/29/23 (2 HOURS)	10:20 AM	42 -5/8 INCHES	YES
3/29/23 (4 HOURS)	12:20 PM	42 -5/8 INCHES	YES
3/29/23 (6 HOURS)	2:20 PM	42 -5/8 INCHES	YES
3/29/23 (END)	4:20 PM	42 -5/8 INCHES	YES
3/29/23 (END RECOVERY)	6:20 PM	42 -5/8 INCHES	YES
3/31/23 (END OF TEST)	10:50 AM	42 -5/8 INCHES	YES

OFFSITE WELL @ 4450 ATLAS PEAK

DATE	TIME	WATER LEVEL
3/29/23 (BEG)	8:20 AM	103 FEET
3/29/23 (1 HOUR)	9:20 AM	103 FEET
3/29/23 (2 HOUR)	10:20 AM	103 FEET
3/29/23 (3 HOUR)	11:20 AM	103 FEET
3/29/23 (4 HOUR)	12:20 PM	103 FEET
3/29/23 (5 HOUR)	1:20 PM	103 FEET
3/29/23 (6 HOUR)	2:20 PM	103 FEET
3/29/23 (7 HOUR)	3:20 PM	103 FEET
3/29/23 (END)	4:20 PM	103 FEET
3/29/23 (30 MINUTES RECOVERY)	4:50 PM	103 FEET
3/29/23 (1 HOUR RECOVERY)	5:20 PM	103 FEET
3/29/23 (1.5 HOUR RECOVERY)	5:50 PM	103 FEET
3/29/23 (END RECOVERY)	6:20 PM	103 FEET
3/31/23 (END OF TEST)	10:30 AM	102.1 FEET