



A Tradition of Stewardship  
A Commitment to Service

Department of Public Works

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Steven E. Lederer  
Director

December 7, 2015

From: Steven E. Lederer, Director of Public Works

A handwritten signature in black ink, appearing to be "S. Lederer", written over the "From:" line.

To: David Morrison, Director, Planning, Building, & Environmental Services

Subject: Groundwater Concerns in the Northeastern corner of the Napa Subarea

As Public Works is beginning to receive and analyze groundwater monitoring data for calendar year 2015, I took this opportunity to review the County's most recently published groundwater monitoring report. In March of 2015 County staff presented the *Napa County Comprehensive Groundwater Monitoring Program 2014 Annual report and CASGEM Update (2014 Annual Report)* to the Board of Supervisors. The 2014 Annual Report presents a generally stable picture of groundwater sustainability on the valley floor. However, it did identify one area of potential concern, the Northeastern corner of the Napa Subarea. For ease of reference Page 36 of the 2014 Annual Report is excerpted and attached (Attachment 1). A map of the approximate area of concern is also included (Attachment 2). Of particular note is that this area of concern is adjacent to the Milliken, Sarco, Tulocay (MST) designated groundwater deficient area.

The 2014 Annual Report notes that in this area there has been "a 10 to 30 foot decline in [seasonal groundwater elevations] over the past 15 years." The Report further discusses the possibility that this area may be hydraulically connected to the MST. There are two wells that have been monitored by the County in this area for several decades, both of which show a history of groundwater level decline during the early 2000s until about 2009. Since that time, spring and fall groundwater levels have fluctuated seasonally, but the overall trend appears to have stabilized. One of these wells is no longer available for monitoring. However, the other well, also located northwest of the MST and east of the Napa River, continues to be monitored. The 2015 spring and fall groundwater level data continue to exhibit a more stable trend, though the overall concern remains. At the time the 2014 Annual Report was issued, the recommendation was simply to continue to monitor the area.

In continuing to monitor this area, I learned that 12 of the approximately 30 homes on Petra Drive have applied for new well permits in the past 10 years (Attachment 3). This is an older subdivision, which may account for this issue, at least in part. I have not yet reviewed each individual permit to determine the cause of each well replacement, but initially this does seem to be an inordinately high ratio of well replacement to parcels.

The purpose of this memorandum is therefore to notify Planning, Building, and Environmental Services (PBES) of an ongoing level of concern regarding this specific area. Public Works will proceed with the following actions:

1. Further investigate the current wells on Petra Drive (to the extent that property owners will allow);
  - a. Analyze the 12 replacement wells and determine causes for replacement;
  - b. Provide well construction data to the County's consultant, LSCE; and
  - c. Determine if any wells are available and appropriate to be included in the County's groundwater monitoring program.
2. During the presentation of the 2015 Annual Report (expected in March, 2016), request Board direction (and funding) to conduct additional studies in this area to better understand groundwater conditions and to determine if this area is in fact an extension of the MST and controls similar to those implemented in the MST are warranted.

We will keep PBES, the Board, and the public apprised as additional data become available. In the meantime, it is my understanding that PBES is in receipt of several pending discretionary applications in this area. It is my recommendation that such applications be treated with an abundance of caution and be given the appropriate level of scrutiny. PBES is also requested to keep Public Works apprised of any groundwater information that is obtained in this area during the course of processing of those (or other) permits.

Attachments:

- (1) Pg 36 of the *Napa County Comprehensive Groundwater Monitoring Program 2014 Annual report and CASGEM Update*
- (2) Map of Northeast corner of Napa Subarea, Area of Concern
- (3) Petra Drive Parcel Map with Well Replacement Information

CC: Laura Anderson, Deputy County Counsel  
Board of Supervisors  
Planning Commission  
Vicki Kretsinger, Luhdorff & Scalmanini Consulting Engineers

the north. Seasonal fluctuations vary by proximity to the center of the valley. Along the western and eastern edges of the subarea, levels are more subject to larger seasonal fluctuations. Groundwater elevations in the center of the valley fluctuate seasonally approximately 10 to 25 feet, and near the edge of the valley fluctuate approximately 25 to 35 feet.

In the Napa Subarea, depth to water ranges from about 20 to 50 feet below ground surface during the spring. Seasonal groundwater elevations in this subarea generally fluctuate from 10 to 40 feet. Long-term trends have been generally stable with the exception of the northeastern area at well NapaCounty-75 where there has been a 10 to 30 foot decline over the past 15 years. This well is located east of the Napa River and adjacent to the MST Subarea. It appears that the decline in water levels at this well may indicate that the cone of depression in the MST Subarea is expanding westward.

Well NapaCounty-75 is located just east of the Napa River and west of Soda Creek fault (i.e., the well that shows a Spring 2014 groundwater elevation of -11.9 ft, msl) is constructed to a depth of 205 feet and is completed in the Sonoma Volcanics formation. The Sonoma Volcanics formation is also present in the MST Subarea to the east, where previous monitoring has shown several pumping depressions (LSCE, 2011a). The two nearest monitoring wells located west of the Napa River in the northeastern Napa Subarea constructed to depths of 120 feet or less and are completed in the alluvium. These wells have shown stable groundwater level trends. The monitoring well in the alluvium that is closest to the well constructed in the Sonoma Volcanics has shown stable water levels since the 1960s. It appears that the extent of the pumping depression beyond the MST subarea may be limited to the northeastern Napa Subarea east of the Napa River.

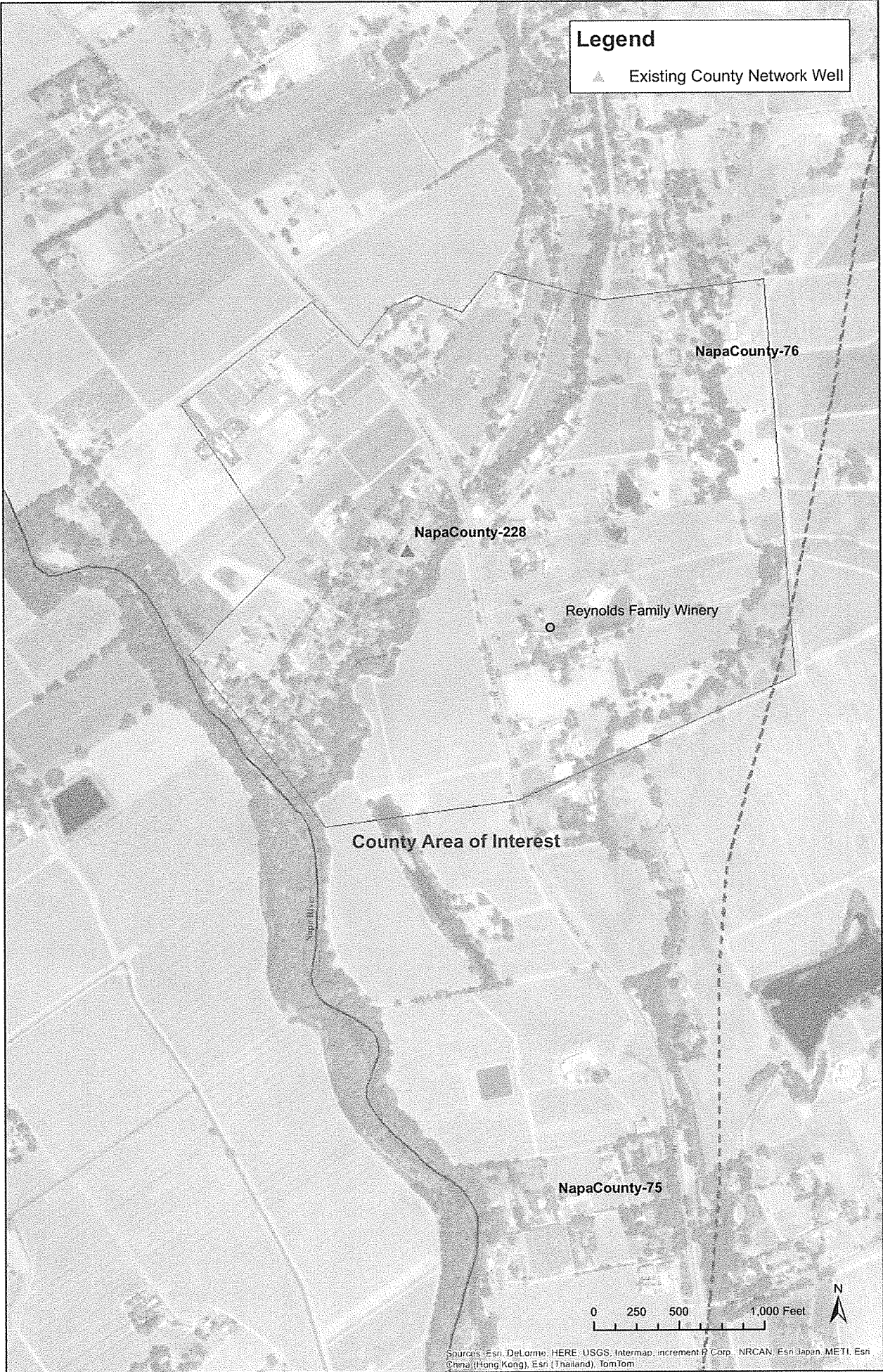
In the southwestern part of the Yountville Subarea and at the Napa Valley margin, groundwater levels in well NapaCounty-135 have also declined since the first measurements were recorded in the late 1970s and early 1980s. Groundwater levels appeared to begin stabilizing in the mid-2000s, then were affected more recently by drier years. As with well NapaCounty-132 in the southeastern St. Helena Subarea, the declining groundwater levels observed in this well indicate multiple potential causes. At well NapaCounty-135, the spring to fall groundwater level changes have been larger in magnitude in more recent years, ranging from approximately 30 feet to 50 feet in many years since 2000. Prior spring to fall groundwater level fluctuations in this well were generally 10 feet to 20 feet. This pattern could indicate an increase in the rate of groundwater pumping, either by NapaCounty-135 or other wells in the vicinity. However, even as the spring to fall groundwater level fluctuations have increased in recent years, groundwater levels have fully recovered in many years. The exceptions appear to coincide with single and multiple dry years, such as 2001, 2007 and 2013 to 2014.

### 5.1.3 Napa Valley Floor – Milliken-Sarco-Tulucay (MST) Subarea

Although designated as groundwater subarea for local planning purposes, the MST is not part of a groundwater basin as mapped by DWR. In the MST, the aquifer system is composed primarily of the Sonoma Volcanics and associated sedimentary deposits. These aquifer materials have different hydraulic properties than the Napa Valley alluvial deposits and the level of communication and connectivity between the two areas is limited. Groundwater levels used for contour mapping in the MST Subarea generally represent conditions of a composite aquifer system as previously described by Farrar and Metzger (2003).

Historically, groundwater flow directions in the MST Subarea were generally from the Howell Mountains in the east toward the Napa River to the west. Beginning in the 1970s, investigators have identified pumping depressions in the northern, central and southern parts of the MST (Johnson 1975, Farrar and Metzger 2003). The current coverage of wells does not extend to the former location of the central (and





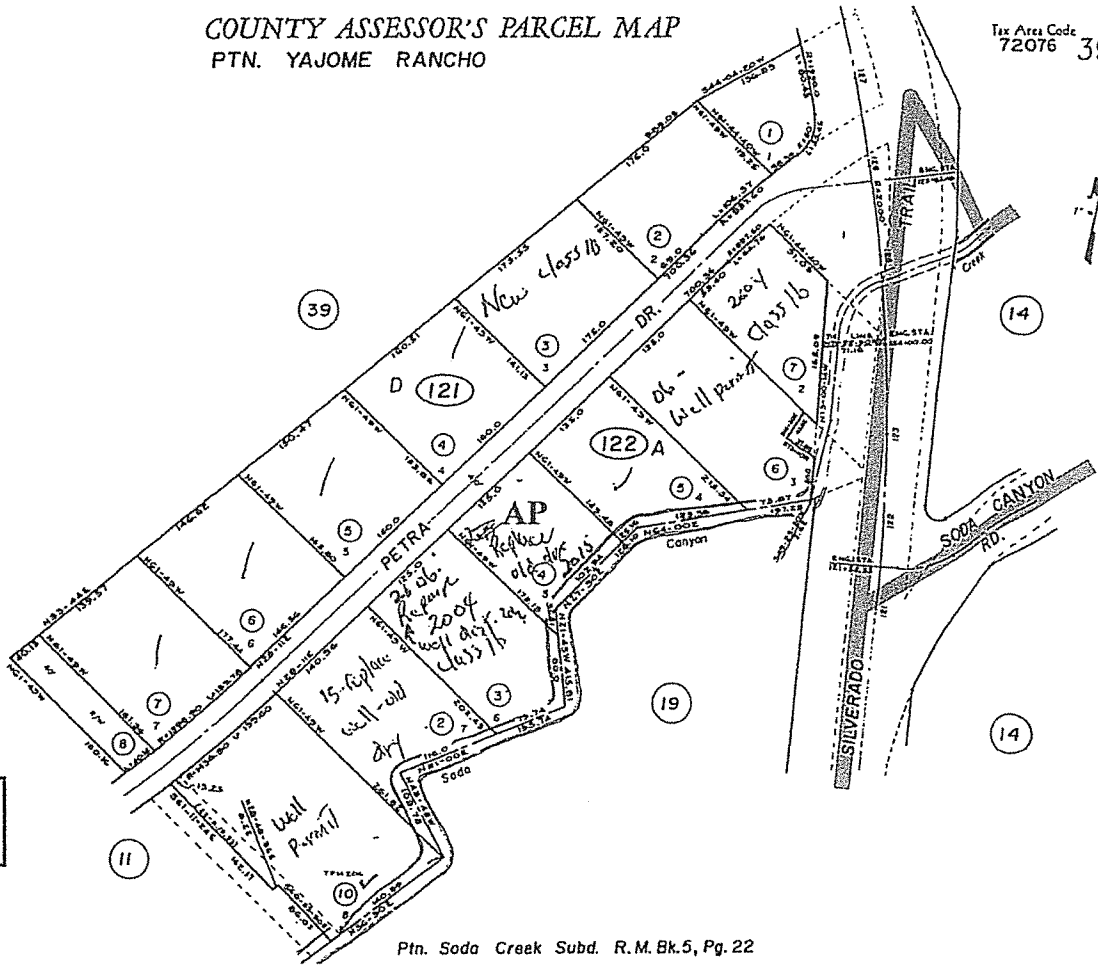
Attachment 2



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COUNTY ASSESSOR'S PARCEL MAP  
PTN. YAJOME RANCHO

Tax Area Code  
72076 39-12

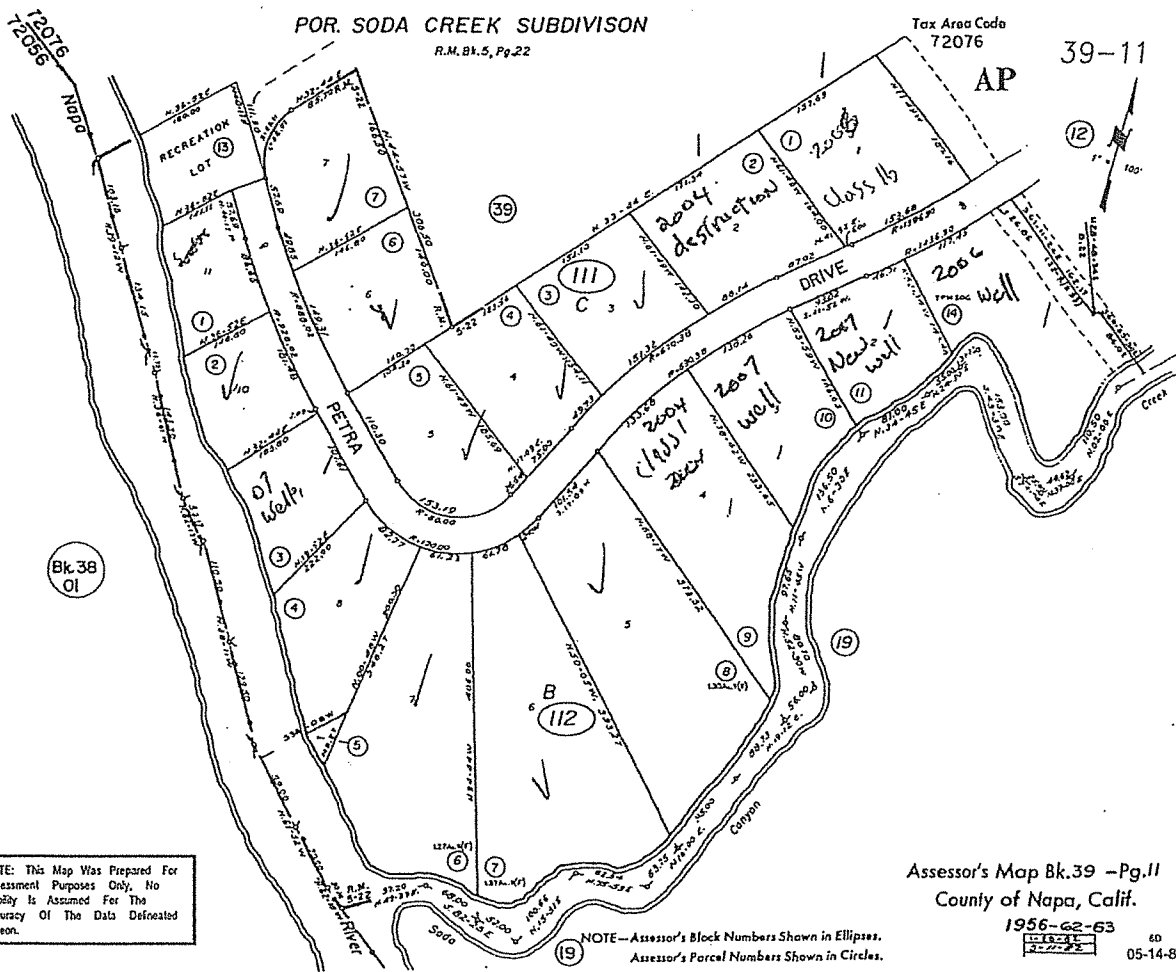


NOTE: This Map Was Prepared For Assessment Purposes Only. No Liability Is Assumed For The Accuracy Of The Data Defined Hereon.

Assessor of Napa County  
 REVISIONS 1971  
 [REVISIONS TABLE]

Ptn. Soda Creek Subd. R.M. Bk.5, Pg.22

39-12.  
02-03-82



POR. SODA CREEK SUBDIVISION  
R.M. Bl. 5, Pg. 22

Tax Area Code  
72076

39-11  
AP

NOTE: This Map Was Prepared For Assessment Purposes Only. No Liability Is Assumed For The Accuracy Of The Data Defeated Hereon.

NOTE—Assessor's Block Numbers Shown in Ellipses.  
Assessor's Parcel Numbers Shown in Circles.

Assessor's Map Bk. 39 -Pg. 11  
County of Napa, Calif.

1956-62-63  
05-14-82

039-390-015  
014  
013