



MEMORANDUM

September 27, 2017

To: Ms. Flora Li
Mr. Bernard Lim
ToHigh Investment SF LLC
Sent via email (flora.li@tohighinvestment.com; bernard.lim@tohighinvestment.com)

Cc: Mr. Leslie Perry
Perry, Johnson, Anderson, Miller & Moskowitz LLP
Sent via email (perry@perryllaw.net)

Job No. 219-SNM07

From: Messrs. Anthony Hicke and Richard Slade
Richard C. Slade and Associates LLC

Re: Response to portions of Appeal Letter, titled
"DRH16-0006 Appeal of Planning Commission Approval"
Prepared by the Valley of the Moon Alliance (VOTMA) and Dated August 14, 2017
Proposed Sonoma Country Inn
Graywood Ranch, Vicinity Kenwood, Sonoma County

Dear Ms. Li and Mr. Lim:

We have reviewed the above-referenced "Appeal Letter" prepared by the Valley of the Moon Alliance (VOTMA). A number of groundwater-related issues were discussed in a section of the VOTMA letter labeled as Item C, titled "The County Must Fully Analyze the Changed Circumstances Surrounding the Water Supply Available to Support the Project." The purpose of this Memorandum is to address the concerns raised under "Item C" as requested by Ms. Li and Messrs. Lim and Perry.

Introduction

The VOTMA letter contends that because the 2004 EIR for the Sonoma Country Inn Project relied on pumping test data presented in the RCS 2002 report, the analysis inherently could not "...account for the recent severe drought conditions", presumably referring to the meteorological



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drought experienced in Northern California beginning in the 2011-12 Water Year and ending in the 2015-16 Water Year.

Herein, drought is defined as a meteorological drought, that is, a period in which the total annual precipitation is less than the long-term average annual precipitation (DWR 2015). As discussed by DWR, "there is no universal definition of when a drought begins or ends, nor is there a state statutory process for defining or declaring drought" (DWR 2015). California's most significant historical statewide droughts were defined by DWR as occurring during the following water year (WY)¹ periods (DWR 2015):

- WY 1928-29 through WY1933-34 - six years
- WY 1975-76 through WY 1976-77 – two years
- WY 1986-87 through WY 1991-92 – six years
- WY 2006-07 through WY 2008-09 – three years
- Recent drought – WY 2011-12 through WY 2015-16² – five years

Therefore, as defined by DWR, two droughts have occurred since the RCS 2002 report was prepared: a 3-year drought, and a 5-year drought, in WY 2006 through 2008, and WY 2011-12 through WY 2015-16.

Water level data presented in the VOTMA letter are derived from the California Department of Water Resources (DWR) Water Data Library website. Water level data for five wells were presented in the VOTMA letter as evidence exhibits, as follows:

- Well 384437N1225793W001 (VOTMA Exhibit 6)
- Well 384437N1225793W002 (VOTMA Exhibit 7)
- Well 384144N1225550W001 (VOTMA Exhibit 8)
- Well 384248N1225611W001 (VOTMA Exhibit 9)
- Well 384310N1225745W001 (VOTMA Exhibit 10)

Figure 1, "Well Location Map," shows the locations of the wells listed above in relation to the Sonoma Country Inn Property and the two existing water-supply wells at the Sonoma Country Inn.

¹ "WY" or "water year" is defined as the period from October 1 of a year through September 30th of the following year; this is the period in which rainfall occurs in California, and is sometimes informally referred to as the "rainy season".

² The DWR 2015 drought document was published in February 2015, and lists the recent drought through the 2013-14 water year only; the drought continued throughout the state into the 2015-16 water year. Due to the rains in late-2016 and early-2107, various sources, including the National Drought Mitigation Center website (NDMC 2017), have declared an end to the drought in Northern California, which would include Sonoma County.



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Wells 384437N1225793W001 and 384437N1225793W002

The VOTMA letter asserts that data from two wells near the project site “show significant and steady long-term decline in groundwater resources over the past 15 years [2002 through 2017]”; those two wells are Well 384437N1225793W001 (VOTMA Exhibit 6) and Well 384437N1225793W002 (VOTMA Exhibit 7). The station data for these two wells list different ground surface elevations for the two well locations. However, the total depths of the two wells are reported to be identical (622 ft), and the latitude/longitude locations are identical (Well 384437N1225793W002 lists six digits after the decimal, whereas data for Well 384437N1225793W001 is rounded to three digits). The groundwater level data reported for the two wells appears to be nearly identical, but the measurements are reported to have been collected on different dates. Also, the most recent measurement for Well 384437N1225793W001 is on March 2016, whereas a measurement for October 2015 is the most recent data point for Well 384437N1225793W002. The California Statewide Groundwater Elevation Monitoring System (CASGEM) website reports similar information for the two wells. It is possible that the two entries in the DWR website actually represent a single well, or two wells that are located in very close proximity to one another.

Evaluation of the trend of the water level data for the period between the year 2002 and March 2016 in these two wells is difficult. In general, there are a maximum of two water level measurements per year (one in spring and one in fall), and there appears to be years of missing data. The available data illustrate the typical, cyclic variation of water levels each year, in that fall water levels tend to be deeper than the spring water levels. This may be somewhat misleading in that the sites are listed as “active” on the CASGEM site, and Well 384437N1225793W001 is reportedly used for “stockwatering”. The pumping frequency for the wells is unknown, and therefore, the static water level measurements may have been collected following periods of pumping, and may not represent true static water levels in the wells.

Based on the available data set, there does appear to be a possible downward trend in water levels through the end of the period of record in October 2015 or March 2016 in Well 384437N1225793W001 and Well 384437N1225793W002, respectively; these dates coincide



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with the final year of the recent drought. No more recent, post-drought data are available in the data set for the well (or wells) in question to determine whether or not water level recovery has occurred. As noted on FEIR page 9.0-70 (NBEP 2004), the location at which Well 384437N1225793W001 and Well 384437N1225793W002 exist exhibit *“very different water level fluctuations and recharge characteristics compared to the other wells in the immediate project area (Sonoma Creek watershed).”* (NBEP 2004). The EIR continues, *“The contributing recharge area is least at the drainage divide, which may be a factor in the water level fluctuations and recharge characteristics. Also, the geology at this particular well [384437N1225793W001] is different. It appears from geologic mapping that Well [384437N1225793W001] draws groundwater from the Glenn Ellen Formation, rather than from the alluvial fan materials and Sonoma Volcanics which underlie the project site.”* Therefore, Well 384437N1225793W001 (VOTMA Exhibit 6) and Well 384437N1225793W002 (VOTMA Exhibit 7) are not representative of the groundwater level conditions at the subject property.

Wells 384144N1225550W001, 384248N1225611W001, and 384310N1225745W001

Three additional wells are mentioned in the VOTMA letter as evidence of “erratic water levels in response to the long-term drought conditions.” These wells were reported to be Well 384144N1225550W001 (VOTMA Exhibit 8), Well 384248N1225611W001 (VOTMA Exhibit 9), and Well 384310N1225745W001 (VOTMA Exhibit 10). Water level data for Well 384144N1225550W001 (VOTMA Exhibit 8) and Well 384248N1225611W001 (VOTMA Exhibit 9) clearly show increasing water level trends in both periods of records (which begin in 2004). There does appear to be a change in the reported ground surface elevation in 2014 for each of the two data sets. Even if this change in recorded ground surface elevation is factored out, these wells both illustrate increasing water level trends in the dataset during the two recent drought periods, and not decreasing trends. Well 384310N1225745W001 (VOTMA Exhibit 10) shows stable water level trends in the data set since the year 2000, with the most recent measurement occurring in March, 2017. Water levels in Well 384310N1225745W001 do not appear to have been negatively impacted by the two drought periods that occurred in the region between the years of 2002 and 2017.



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Well 384170N1225640W001

Well 384170N1225640W001 was not included as an exhibit in the VOTMA letter, but data for this well are also available from the same DWR website, and is located in the same general vicinity of the wells discussed in the VOTMA letter (See Figure1). Water level data available for this well between 2008 and 2017 show stable water level trends overtime. The location for this well is illustrated on Figure 1.

Onsite Water Level Data

Water level data have been collected at various times in the onsite wells since their construction in 2002. Figure 2, “Water Level Data, Resort Well,” and Figure 3, “Water Level Data, Winery Well,” illustrate those water level data as hydrographs, and each figure includes a schematic of the respective well construction on the right-hand side of the page for comparison. Water level data are available for the two onsite wells from the following time periods:

- One manually-collected data point in 2002 following the original construction of each well.
- Roughly one year of automatically-collected transducer data between the approximate dates of June 2003 through June 2004.
- One manually-collected water level in November of 2008, when additional pumping tests were being performed by others in the Sonoma Country Inn wells.
- Approximately one year of transducer-collected data beginning in October 2015 and ending in December 2016. These data were collected as part of an ongoing water level monitoring program administered by RCS at the Sonoma Country Inn site.

As shown on Figures 2 and 3, the available data suggests water levels are stable in the onsite wells since 2002, despite the two droughts which occurred in the region since that date.

Pumping Tests Performed in 2008 During Drought Period

Two additional pumping tests, one in each of the two onsite wells, were performed in 2008 as described in the RCS April 2009 report titled “Hydrogeologic Report for Adequacy of Groundwater Supplies for the Proposed Sonoma Country Inn Kenwood Area, Sonoma County, California” (RCS 2009). The purpose of the RCS 2009 report was to meet the requirements set forth by the California Department of Public Health (CDPH) in Article 2 of Chapter 16 (California Waterworks Standards), of Division 4 of the California Administrative Code, Title 22, Paragraph 64554 – New and Existing Source Capacity, subsection (g), Item (1).



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These two additional pumping tests were performed in November 2008 and December 2008 in the Resort Well and the Winery Well, respectively, during the WY2006-07 through WY2008-09 drought periods recognized by DWR. Based on the data collected and analyzed for that report, RCS stated in conclusion on Page 22 that "It is our professional opinion that these two onsite wells [the Resort Well and the Winery Well] have the pumping capacities to meet the [Sonoma Country Inn] project demands and that pumping by these wells will not create long-term adverse impacts on the local aquifer systems or nearby water wells owned by others."

Conclusions

Only two of the hydrographs presented in the VOTMA letter (for Wells 384437N1225793W001 and 384437N1225793W002) displayed data that can be considered to show some decline in the period of time between 2002 and 2017; these hydrographs may also represent the same well, although that connection is unclear. Those wells are located in an area underlain by the Glenn Ellen Formation, and hence they may not be representative of the groundwater level conditions beneath the subject property.

The VOTMA letter presented three additional hydrographs for wells in the area of the subject property (Wells 384144N1225550W001, 384248N1225611W001, and 384310N1225745W001) in which, although described as "erratic" trends in the VOTMA letter, water level trends do not represent a long-term water level decline between 2002 and 2017. RCS also obtained and reviewed additional water level data for another well in the area not identified by VOTMA, (Well 384170N1225640W001); these data show stable water levels during the VOTMA period of concern (2002 through 2017).

Importantly, available water level data for the two onsite wells have remained stable since their construction in 2002. That is, as illustrated on Figures 2 and 3, recent water level measurements in the onsite wells are very similar to, or even higher than, the post-construction water levels in both of the onsite wells.

Finally, additional pumping tests were performed in each of the onsite wells in 2008, during a DWR-defined drought period. As a result of the second round of pumping tests, it was the opinion of RCS that pumping the two onsite wells proposed to be used for the proposed

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Sonoma Country Inn project will not create long-term adverse impacts on either the local aquifer systems or nearby water wells owned by others. After reviewing the additional data presented by VOTMA and summarized in this letter, the opinion of RCS has not changed.



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References

- (DWR 2015) Jones, Jeanine, et al., February 2015. California's Most Significant Droughts: Comparing Historical and Recent Conditions, California Department of Water Resources
- (RCS 2002) Richard C. Slade & Associates LLC. December 2002. "Results and Analysis of 48-hour Constant Rate Pumping Test Resort Well at Graywood Ranch"; prepared for Auberge Resorts
- (RCS 2009) Richard C. Slade & Associates LLC. April 2009. "Hydrogeologic Report for Adequacy of Groundwater Supplies for the Proposed Sonoma Country Inn Kenwood Area, Sonoma County, California"; prepared for Campagna Land LLC.
- (NBEP 2004) Nichols Berman Environmental Planning. February 2004. "Sonoma Country Inn, Final Environmental Impact Report -- Response to Comments on the Draft Environmental Impact Report". Prepared for the County of Sonoma Permit and Resource Management Department.