

Attachment I

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June 30, 2017

Environmental Health Services
1270 Natividad Road
Salinas, CA 93906
Attn: Roger VanHorn



Re: TMF capacity for POE Water Treatment System
First Baptist Church of Carmel Valley (Cachagua Bible Church)
PLN140863; APN 418-441-006-000

Dear Roger,

This letter is in response to your letter of May 25, 2017, wherein you requested certain information regarding Technical, Managerial, and Financial (TMF) capability of the existing unpermitted water system and the proposed Point of Entry (POE) water treatment system.

Technical:

1. Reverse Osmosis will be the technology that will be used to treat the fluoride exceedance. (See letter from Gary Wiegand June 29, 2017.)
2. The treated water will be in conformance with the Maximum Contaminant Level (MCL) of 2 ppm for fluoride, which is the only MCL exceedance from the source water of the well.
3. The estimated maximum day demand of interior water use that will be treated via the POE system on the project site is 0.131 acre/feet/year (i.e. an average of 117 gal/day) for Pastor's residence and 0.245 acre/feet/year (i.e. an average of 219 gal/day) for the Church building. (See letter to Monterey County Water Resources from Martin Feeney dated April 20, 2015.)
4. The estimated volume of water that will be lost to treatment is an average of 117 gal/day for the Pastor's residence and an average of 219 gal/day for the Church building. (See the letter from Gary Wiegand dated June 29, 2017.)
5. Pilot testing protocol: See Attachment 1 dated June 11, 2017.
6. Water treatment disposal trench: Your May 25, 2017 letter limited the total depth of the water treatment disposal trenches (i.e. Pastor's residence and the Church) to 3 feet based on Grice Engineering Percolation and Groundwater Study, dated July 2015. The location of the soils and percolation bore holes are below the existing single family dwelling that is proposed to be converted to a Church. However, the disposal trenches are not proposed to be located in the general low lying area of the creek where the bore holes are located and the Percolation and Groundwater Study for this area was based on. See the revised plot plan for the size and location of the disposal trenches.
 - a. Church Disposal Trench:
The proposed disposal trench for the Church building will be upslope and approximately 130 feet from the Church on a portion of the slope that flattens out to less than 20% slope. The elevation is approximately 30+ feet higher than the ground level elevation of the bore holes in the Percolation and Groundwater study and approximately 285 feet from top of the creek bank. We are proposing a disposal trench of 240 sq. ft. (20 ft. long and 6 ft. effective depth).

b. **Pastor's Residence:**

The proposed disposal trench for the existing Pastor's residence is southeast of the residence on relatively level ground and will be approximately at the same elevation of the residence. The elevation of the proposed location of the disposal trench is approximately 30+ feet higher than the ground level elevation of the bore holes of the Percolation and Groundwater Study and approximately 150 ft. from top of the creek bank. We are proposing a disposal trench of 150 sq. ft. (15 ft. long and 5 ft. effective depth).

Managerial:

7. Owner of Water System: First Baptist Church of Carmel Valley (DBA Sanctuary Bible Church) will own the water system.
8. Water System Operator: A service provider that is experienced in servicing and maintaining water systems will be retained to operate and maintain the POE water treatment systems.
9. POE Treatment Strategy: See attachment 2 dated June 30, 2017.
10. POE Operations and Maintenance (O & M) Program: See Attachment 3 dated June 11, 2017.
11. POE Monitoring Program: See Attachment 4 dated June 30, 2017.

Financial:

12. The preliminary estimate of capital improvement costs for installation of the water treatment system is \$10,000 per POE. (See the letter from Gary Wiegand dated June 29, 2017.)
13. First Baptist Church of Carmel Valley (DBA Sanctuary Bible Church) will be financially responsible for the ongoing operation and maintenance cost of the water treatment system.

I trust this information satisfies the requested information in your letter of May 25, 2017 and gain your approval of the proposed water treatment system.

Sincerely,



Richard LeWarne

ATTACHMENT 1

Pilot Test

June 30, 2017

- 1. The POE water treatment system approved by the Environmental Health Bureau will be installed at the parsonage and at the Church.**
- 2. The pilot test will continue for two months (i.e. 8 weeks). During these two months bottled water will continue to be used for drinking and cooking.**
- 3. The product water from the POEs will be tested for fluoride concentration once a week to determine whether the product water meets the MCL for fluoride (i.e. 2 ppm) by an approved service provider.**
- 4. The results will be forwarded to the Environmental Health Bureau within 72 hours of receiving the results.**
- 5. If the test results of the product water do not meet the MCL for fluoride then the service provider will be instructed to determine the problem and correct it. The pressure tank supplying the house will be emptied of the old product water prior to allowing the new product water to go into the pressure tank.**
- 6. The weekly testing will then resume.**
- 7. At the end of two months the First Baptist Church of Carmel Valley (DBA Sanctuary Bible Church) will submit a report to the Environmental Health Bureau describing the results and findings of the pilot testing.**

ATTACHMENT 2

POE Treatment Strategy

June 30, 2017

1. **POE:** The Reverse Osmosis filter will be used to mitigate the fluoride MCL exceedance of 8.8 ppm and will bring the fluoride contaminant level into conformance with the MCL of 2 ppm.
2. **Compliance Issue:** The water system consists of one property of approximately 10 acres with two connections. Two POEs will be installed, one at each connection.
3. **Selection of POE installation:** The Church owns the property and the two connections.
4. **Service Provider Qualifications:** A qualified service provider(s) approved by the Environmental Health Bureau experienced in water treatment installation, operation, maintenance, and water sampling and analysis will be retained by the Church.
5. **Public Education:** The Church will provide information to the Pastor and Congregation regarding the POE prior to and after installation of the POE.
6. **Authority to access the two connections:** The Church owns the property and the two structures so there is no need to seek permission for access from any other party.
7. **Local Regulatory Requirements:** Must be in compliance with Monterey County Code (MCC) 15.04.
8. **POE Failure:** In the event that the product water from the POE fails to meet MCLs as set forth in MCC 15.04 the Church will:
 - a. Notify the Pastor and Congregation by means of email for those congregants who wish to provide an email address; and
 - b. A written notification will be presented to the Congregation at the following Sunday Service of the POE failure; and
 - c. A notice will be posted at the Church entrance for public viewing; and
 - d. An announcement will be made to the Congregation during the Sunday Service referenced in 8b; and
 - e. Bottled water will be supplied to the Pastor and Congregation until the product water meets MCLs.

ATTACHMENT 3

Operations and Maintenance (O&M) Program

June 30, 2017

- 1. The POE for the Church will be located northeast and upslope from the Church in an accessible location. The POE for the residence will be located Southeast and 80 feet from the residence and adjacent to the driveway leading to the residence.**

The Church owns the property, the residence, and the Church building. Therefore, access to the POEs is not an issue.

- 2. Once the final design is completed and the pilot testing is done the type and frequency of maintenance will be determined.**
- 3. Once the final design is completed the auxiliary parts that need to be kept on hand will be determined.**
- 4. Once the final design is completed replacement schedules for critical components and POEs will be determined.**
- 5. A qualified service provider(s) approved by the Environmental Health Bureau experienced in water treatment installation, operation, maintenance, and water sampling and analysis will be retained by the Church.**
- 6. The waste from POE will comprise of reject water from the reverse osmosis filter and will be disposed of in disposal trenches.**
- 7. The POEs shall be inspected at least every 12 months to ensure they have not been bypassed.**
- 8. The POE O&M Program procedures will be revised as needed to ensure continuous and effective treatment so that the product water meets drinking water standards. Any revision to the O&M Program shall be submitted to the Environmental Health Bureau for review and approval prior to implementing the revised O&M Program.**
- 9. The Church will keep a copy of the most recent POE O&M Program and implement the most recent revised POE O&M Program.**

9. Ongoing Consumer Notification: The Church will:

a. Post a permanent notice to the entrance of the Church describing the necessity for the treatment system (i.e. fluoride MCL exceedance, health effects of fluoride in drinking water, and the POE filtration system);

b. At a Quarterly Sunday Service a notice will be provided to the Congregation and an announcement will be made at the Sunday Service regarding the POE and the notice that is being given to the Congregation.

ATTACHMENT 4

POE Monitoring Program

June 30, 2017

- 1. The well shall be sampled in January, April, July, and October of each calendar year for fluoride.**
- 2. The POE product water shall be sampled and tested for fluoride within 72 hours of the initial installation of the POEs.**
- 3. At a minimum the product water from the POE of the Pastor's residence shall be sampled and tested on alternate calendar years from the POE of the Church's POE product water. The product water shall be sampled and tested for fluoride to determine if the fluoride contaminant level conforms to the MCL health standards of 2 ppm in the product water.**
- 4. Also, a total dissolved solids analyzer installed on the product water side of the reverse osmosis (RO) filter will monitor the ongoing effectiveness of the RO filter. An alarm light will be installed for both POE filtration system.**
- 5. The Church will maintain a copy of the most recent POE Monitoring Program and will revise it as necessary. Any revision to the monitoring program shall be submitted to the Environmental Health Bureau for review and approval prior to implementing the revised monitoring program.**
- 6. If the POE product water exceeds the MCL for fluoride, then the Church will take a confirmation sample prior to or within 7 days of the public notification and provide bottled water as indicated in the POE Treatment Strategy.**
- 7. If the confirmation sample or the average of the confirmation sample and the original sample exceeds the MCL for fluoride the Church will notify the Environmental Health Bureau within 24 hours. Corrective action will be made as soon as possible but within one month of receipt of the result.**



Utility Services

June 29, 2017

Mr. Orville Myers
19345 Cachagua Road
Carmel Valley, CA. 93924

Subject: Cachagua Bible Church Water System
PLN 140863, APN 418-441-006-000
Reverse Osmosis to Remove Fluoride

Dear Mr. Myers:

Reverse osmosis (RO) is a proven and reliable method of removing fluoride from well water in order to meet the requirements of the Health Department. The Cachagua Bible Church well water contains fluoride at a concentration of 8.8 mg/L according to a laboratory test report dated October 7, 2014 and the allowable maximum contaminant level is 2.0 mg/L. RO will remove approximately 99% of the fluoride from the water, thereby reducing the fluoride to less than 0.1 mg/L, well below the maximum allowed. One point of entry (POE) RO unit is proposed for the pastor's residence and another for the church building. RO produces a waste stream of about one gallon of waste for every gallon of treated water produced.

The RO systems that will incorporate the following components:

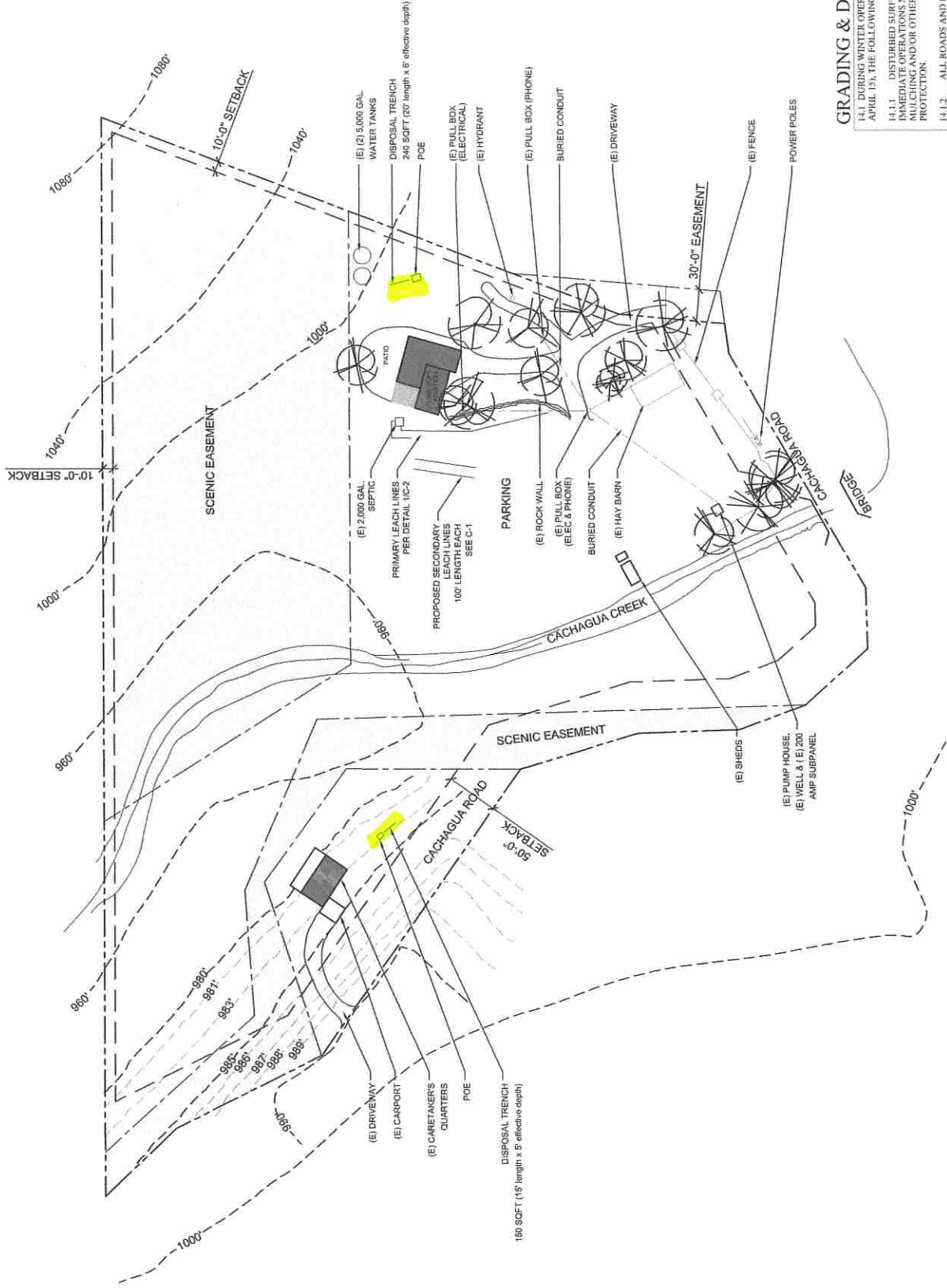
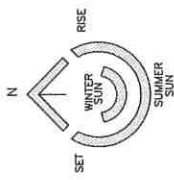
- Raw water holding tanks that the well will pump into
- The RO units that will consist of a pressure pump and the RO filtering elements
- A treated water storage tanks and pressurization pumps

A preliminary cost estimate is \$10,000 for each system.

Please call me at (831) 238-6236 if you have any questions or if you require additional information.

Sincerely,

Gary E. Wiegand, P.E.
Principal Engineer
RCE CA 49871



- ### GRADING & DRAINAGE NOTES
- 14.1. DURING WINTER OPERATIONS (BETWEEN OCT 15 & APRIL 15), THE FOLLOWING MEASURES MUST BE TAKEN:
 - 14.1.1. DISTURBED SURFACES NOT INVOLVED IN THE IMMEDIATE OPERATIONS MUST BE PROTECTED BY MULCHING AND/OR OTHER EFFECTIVE MEANS OF SOIL PROTECTION.
 - 14.1.2. ALL ROADS AND DRIVEWAYS SHALL HAVE DRAINAGE FACILITIES SUFFICIENT TO PREVENT EROSION ON OR ADJACENT TO THE ROADWAY OR ON THE DOWNHILL PROPERTIES.
 - 14.1.3. RUNOFF FROM THE SITE SHALL BE DETAINED OR FILTERED BY BEAMS, VEGETATED FILTER STRIPS, AND/OR CATCH BASINS TO PREVENT THE ESCAPE OF SEDIMENT FROM THE SITE.
 - 14.1.4. DRAINAGE CONTROL MEASURES SHALL BE MAINTAINED AND IN PLACE AT THE END OF EACH DAY AND CONTINUALLY THROUGHOUT THE LIFE OF THE PROJECT DURING WINTER OPERATIONS. (MONTEREY COUNTY GRADING EROSION ORD. 2006-16.12-09)

(P) SITE PLAN
 ARCHITECTURAL SCALE: 1"=50'-0"



Martin B. Feeney
Consulting Hydrogeologist

**Applicant
Submittal**

P.G. 4634
C.E.G. 1454
C.Hg 145

April 20, 2015

Monterey County Water Resource Agency
P.O. Box 930
Salinas, CA 93902

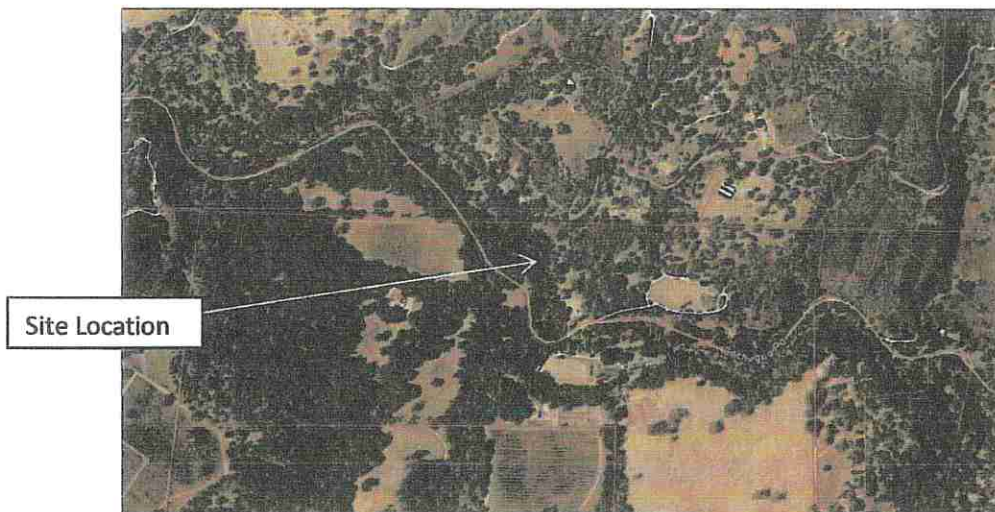


Attention: Jennifer Bodensteiner, Hydrologist
Rob Johnson, Deputy General Manager

Subject: Cachagua Bible Church, APN: 418-441-006-000, PLN: 140863 – Preliminary Water Demand Estimate – Hydrogeologic Report Scoping Guidance

Dear Ms. Bodensteiner and Mr. Johnson:

This letter is a follow up to your letter of 11/18/2014 regarding the subject property. In this letter you request the performance of the hydrogeologic study for review and approval prior to the subject project. The intent of this letter is to provide more background regarding the project with the intent of developing an appropriate scope for the requested hydrogeologic study. Presented in this letter is an analysis of the change in water demand associated with the project. Also presented is a brief summary of the hydrogeologic setting and water supply. The site location is shown below.



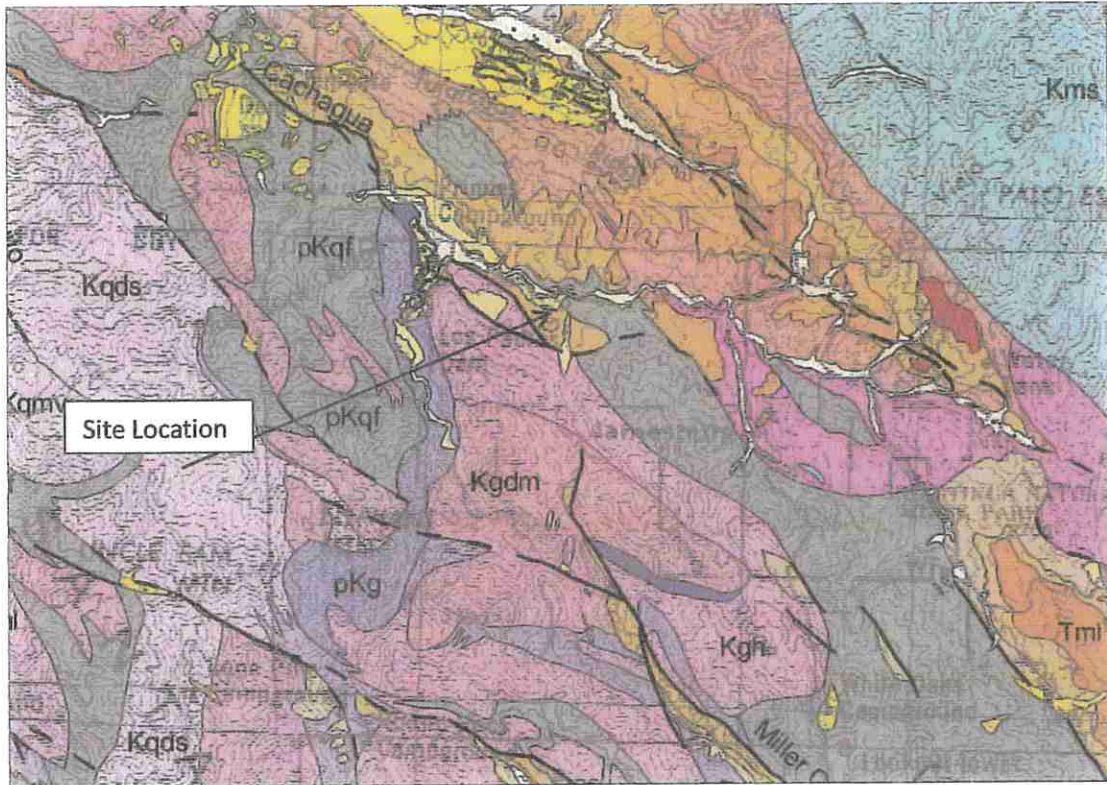
Project Description: The subject property is a 10 acre property located at 19345 Cachagua Road in the Cachagua area of Monterey County. The subject project entails the conversion of an existing single-family residence and guesthouse, to a church and pastor's house. There will eventually be an addition of 1574 square feet of floor space to the church. The pastor's house will be unchanged and will be occupied full time. The church would have Sunday day and Wednesday night services. The congregation is estimated to be approximately 35 people.

Land Use/Zoning: The subject land and the neighboring parcels are zoned rural conservation (RC). Consistent with this zoning the subject and adjacent properties are developed as homes some with attendant vineyards or small orchards. The parcel boundaries are shown above. The subject property development is limited to a residence and a guesthouse.

Water Supply: The property obtains its water supply from a well located Cachagua Road on the southwest corner of the property. There is also identically constructed backup well located approximately 40 feet

from the active well on the property. The wells are both constructed of 5-inch diameter PVC are approximately 480 feet deep, have 55-foot sanitary seals, and are perforated 60 feet to bottom. At the time of their construction (1991) both wells were test pumped for 12 hours and produced more than 30 gpm. The logs for these wells are attached.

Based on review of the local geology and considering the depth of the wells and review of the lithologic log it can be inferred that wells are perforated and produced from the fractured granitic bedrock. A portion of the geologic map is presented below.



Portion of Monterey County Geologic Map – Lew Rosenberg for Mty Co. General Plan. Legend to Map units attached.

Water Demand:

Water demand for the existing use and the proposed new use was calculated utilizing the methods of the Monterey Peninsula Water Management District (District). Although, the property is just outside the boundaries of the District, the methods developed by the District, have been vetted and utilized for the estimation of water demand in the area for more than 30 years. The District has developed methodologies that use a combination of inventory of water using fixtures and/or established values for square footage for a given use. The square footage use values have been developed from District analysis of water bills. Blank forms developed by the District are attached for reference.

Existing Use: The existing use consists of a 3 bedroom, 2 bathroom, 1926 sq. ft. house and a 2 bedroom, 2 bathroom 1194 sq. ft. guesthouse. There is no formal landscaping or irrigation. For residential uses such as this, the District methodology utilizes a fixture unit method. Each water using fixture has an assigned a fixture unit value and multiplied by a water use factor. A fixture inventory and fixture unit count and associated water demand for the existing use is presented in Table 1 – Water Demand – Cachagua Bible Church Project Water Demand

Proposed Use: The proposed project entails conversion of the larger house and the addition of 1574 square-feet of space. The guesthouse would remain the same, simply being repurposed as the Pastor's house. The pastor's house will be retrofitted with new water-efficient toilets, high-efficiency washing machine and high-efficiency dishwasher. Again, no landscape irrigation is proposed. Estimation of water demand for the proposed project requires use of the fixture unit method for the pastor's house which would be a full-time residence, and the square footage method for the church, as it is intermittently occupied. The water demand for the proposed project is also presented on Table 1.

Table 1 – Cachagua Bible Church Project Water Demand

EXISTING				PROPOSED			
<u>Guest House (2 bedroom, 2 baths)</u>				<u>Guest House (2 bedroom, 2 baths)</u>			
Fixtures	Count	Fixture Units per installation	Fixture Units (FU)	Fixtures	Count	Fixture Units per installation	Fixture Units (FU)
toilets (> 1.6 gals/flush)	2	4	8	toilets (high eff.) ^a	2	1.3	2.6
sinks	2	2	4	sinks	2	2	4
shower/bath	2	2	4	shower/bath	2	2	4
kitchen sink w/ dishwasher	1	2	2	kitchen sink w/ hi-eff. Dishwasher ^a	1	1.5	1.5
washing machine	1	2	2	hi-eff washing machine *	1	1	1
			20				13.1
WATER DEMAND (FU x 0.01 AFY) ^a				WATER DEMAND (FU x 0.01 AFY) ^a			
0.2 acre-feet/year				0.131 acre-feet/year			
<u>Main House (3 bedroom, 2 baths)</u>				<u>Church</u>			
Fixtures	Count	Fixture Units per installation	Fixture Units	Useable Square Footage	3500 SF		
toilets (> 1.6 gals/flush)	2	4	8	Water Use Factor per Square Foot ^b	0.00007 AFY/SF		
sinks	2	2	4				
shower/bath	2	2	4				
kitchen sink w/ dishwasher	1	2	2				
washing machine	1	2	2				
			20				
WATER DEMAND (FU x 0.01 AFY) ^a				WATER DEMAND			
0.2 acre-feet/year				0.245 acre-feet/year			
EXISTING WATER DEMAND				PROPOSED WATER DEMAND			
0.4 acre-feet/year				0.376 acre-feet/year			

^a MPWMD Residential Use Demand Estimate
^b MPWMD Commercial Use Demand Estimate
 * Retrofitted

Comparison the existing and proposed water demand presented on Table 1 reveals that, as a result of the retrofitting and the intermittent use of the church facility, water demand for the proposed project is slightly less than the existing water demand.

Closure:

In your letter you have requested a hydrogeologic report that meets the criteria of General Plan PS 3.2 and Title 19 be conducted for the subject property. It is requested that some consideration of a modified scope of study be considered for the following reasons:

- There is no intensification of use. Proposed project will have a lower water demand than the existing use.
- The proposed use will be much lower than adjacent properties of similar zoning. Permitted under the current zoning would be a vineyard or orchard. Assuming possibly 5 acres of grapes, annual water demand would increase to at least 3 to 5 acre-foot, depending on rainfall.
- Title 19 essentially applies to subdivisions. This is not a subdivision only a conversion of an existing use.
- Title 19, as written, is designed to evaluate the hydrologic balance of a groundwater basin with known boundaries. The subject property is not in a groundwater basin because it overlies and produces water from a fractured bedrock terrain. In this hydrogeologic setting, well yields and groundwater movement is a function of secondary porosity – fractures and bedding planes. Determination of boundaries for purposes of quantifying extractions or recharge in a fractured bedrock terrain is not realistically possible.
- An hydrogeologic report that address the specified items in Title 19 would require the adoption of so many arbitrary assumptions regarding boundary conditions, that the conclusions would be essentially meaningless.

I look forward to working with the Agency to develop a more appropriate scope of investigation for the project. Please contact me if you have any questions.

Sincerely,

Martin Feeney

