

Date: April 7, 2021  
 File: 2120009

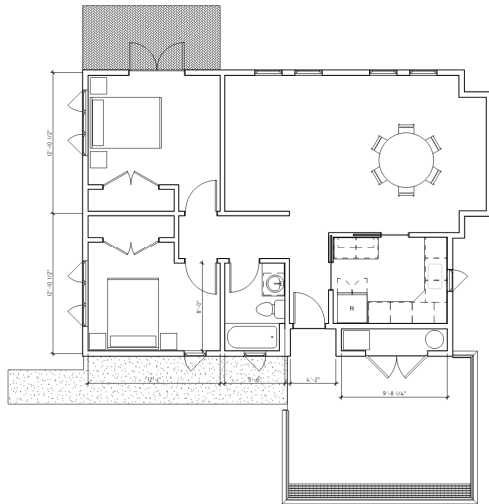
Melissa Draper  
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via email only  
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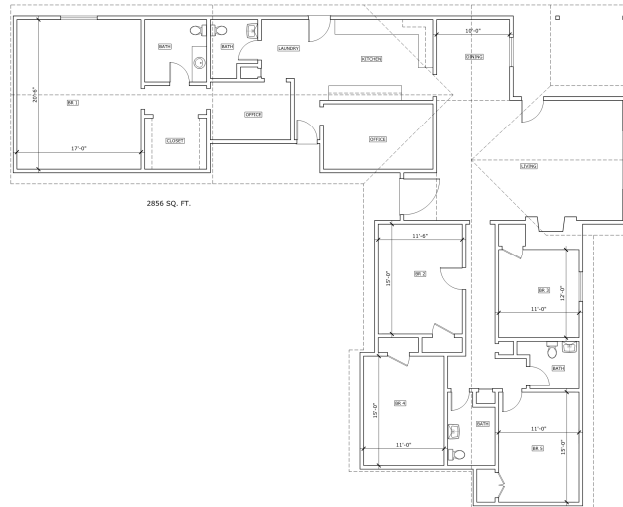
**RE: DRAPER SEPTIC OBS: 560 PIERCE POINT RD  
 INVERNESS, CA (APN 10—300-10)**

Dear Melissa,

On March 25<sup>th</sup>, a hydraulic load test was performed to evaluate the dual pressure distribution septic system at the above listed property. The purpose of this test was to assess the current condition of the system for planned building improvements. Planned improvements include replacing 814 ft<sup>2</sup> of a deteriorated portion of the existing (5) bedroom main residence and remodeling the (2) bedroom guest house.



**Proposed Guest House**



**Existing Main House**

A hydraulic load test was performed according to Marin County Environmental Health Services (EHS) criteria for septic system evaluations. The test can only attest to the performance of the system on the day of evaluation. Listed below is a summary of the significant septic system components, results of the load test, and conclusion that the existing septic system will properly treat and disperse wastewater for the existing and proposed building improvements.

The existing Class I standard septic system was designed for a single-family residence with up to 8-bedrooms per EHS records. The property is approximately 10 acres and zoned C\_ARP-2 (Agriculture Residential Planned) and has an average slope of approximately 21% to the east. Soil profile logs, passing percolation test results, and design plans are on-file in EHS records. The significant components include a septic tanks, sump tank, diversion valve, and dual (pressurized) leach fields. Operation and maintenance of the septic system is the responsibility of the current property owner.

**SEPTIC TANKS**

Wastewater from the building sewer flows into two (2) septic tank located below the northeasterly most building corner as indicated in the design plans. The concrete septic tank each had two (2) Orenco plastic risers with bolted-down lids. There was no significant scum or sludge build-up inside the tanks. There was no root intrusions or signs of excessive use within the risers. The septic tank capacities were 1500-gallons. The purpose of these septic tank is to help remove and breakdown solids and chemicals in the wastewater. Upon arrival at the site, wastewater was at the “working” level. The tanks are water tight and the internal baffle appeared to be intact. Plastic tees were visible in all tanks. A Zabel septic tank effluent filter was located in the outlet side of the 2<sup>nd</sup> septic tank. The purpose of this filter is to help remove suspended solids prior from wastewater effluent prior to the sump tank.



Septic Tank Inlet Lid



Septic Tank Outlet Lid

**LEACH FIELD**

From the septic tank, wastewater effluent flows into a 1500-gallon concrete sump tank, located just west in series with the 2<sup>nd</sup> septic tank. The Rhombus control panel is south (uphill) of this tank,



Sump Tank

mounted on a 4x4 wooden post. Excepting the audio high level alarm, the control panel was acceptable. A submersible pump, float switches, splice box, pressurized sewer pipe and appurtenances were visible inside the tank. Access to the tank is provided through a single Orenco plastic riser and bolted down lid. There was no visible root intrusion or signs of high water levels. The pump “on” and “off” float switch operations were acceptable. The high level alarm float switch did not activate the audio/visual alarm in the control panel. Based on observation and the design plans, there is over 1,000 gallons of emergency storage capacity in case of power outage or pump failure.

**DIVERSION VALVES**

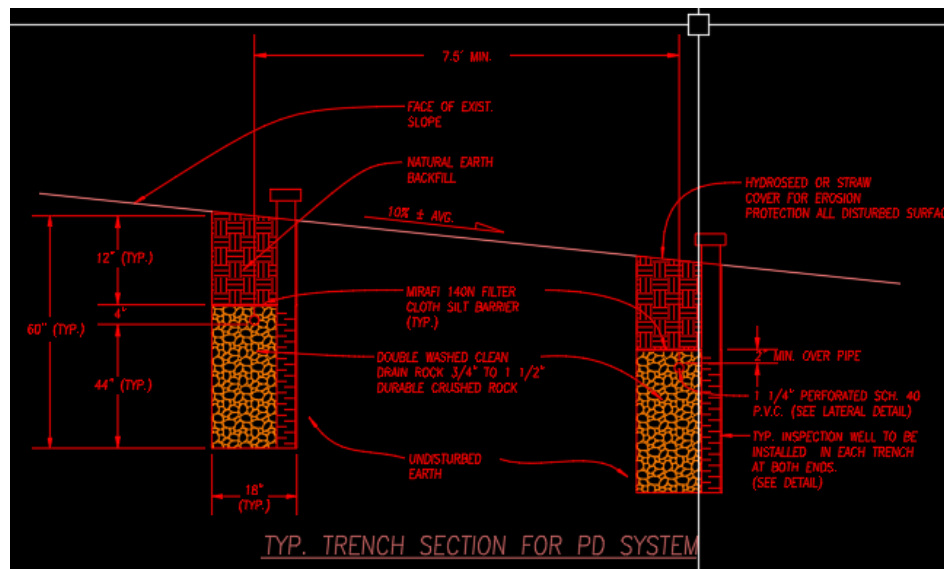
From the sump tank, wastewater effluent is pumped to two (2) diversion valves. The purpose of these valves are to alternate wastewater flow to the two (2) leach fields. Alternating wastewater flow helps prolong the leach fields’ lifespan by allowing one field to “rest” and other to be active. The diversion valves are located within a concrete box downslope of the leach fields as indicated in the design plan.

The two (2) brass gate valve were operational. Upon arrival, one (1) valve was open and the other closed. As part of the load test, the valve positions were alternated such that the northerly most field is active.



**PRESSURE DISTRIBUTION LEACH FIELDS**

The leach field locations are generally indicated in the design plans. Monitoring wells, gate valves, and boxes for purging are located at the ends of each leach line. There was no “striping” over the leach lines and the ground was firm to the step. Based on the design plans, a typical leach line section is indicated below. There is approximately 100 linear feet of leach line per field.



Prior to the test, each leach line was purged. There was no significant solid build-up from the purge. Each leach line had adequate pressure. There were no surface water bodies within 100 feet of the leach fields. Soil profile logs indicate at least three (3) feet of separation from the bottom of trench to seasonal high groundwater elevations.

**HYDRAULIC LOAD TEST**

To observe the leach fields' response to hydraulic loading, approximately 150-gallons of water were added to the sump tank. No breakout or surfacing of wastewater effluent was visible before, during, or after the test. The pump operation was acceptable and each leach line had adequate pressure. There was no noticeable issues with the pump operation. All monitoring wells were dry before and after the load test to each field.

**CONCLUSION**

The existing septic system consists of a Class 1 pressure distribution system. Tax Assessor records indicate the subject property has six (6) bedrooms. We did not assess the current number of bedrooms, or compare the square footage of the house with County records. Septic systems are complex and their performance is based upon many variables such as use, age, soil conditions, and ground water conditions. Our evaluation cannot predict the future performance of the system, nor can it give us an indication of the life expectancy of the system. Based on observations made during the testing, it appears the septic system was "Performing Adequately" on the day of the test. The septic system response to the hydraulic loading was "Excellent".

Proposed building improvements include adding a bedroom, which increase the potential wastewater loading. As indicated in the design plans, the wastewater system is over-sized and meets current Marin County EHS regulations. Based on the results of the hydraulic load test, the existing septic system is appropriately sized to treat and disperse wastewater from the proposed building improvements.

We appropriate the opportunity to assist you in the approval of the proposed building improvements as the conditions listed in the Remodel and Additions policy. If you have any questions, please feel free to call me.

Very truly yours,

CSW/STUBER-STROEH ENGINEERING GROUP, INC.



Richard J. Souza  
R.C.E. #67892, Expires 6/30/21

