A C Engineering Group Inc.

December 8, 2021
Project No. Perc12140-21

Victoria Martinelli
12164 Soledad Rd
Pinon Hills, CA 92372

Subject: *Limited Feasibility Percolation Evaluation, Onsite Sewage System for the site located at Madrid Pl., Pinon Hills, APN# 3099-231-17-0000, San Bernardino County, California*

References: *County of San Bernardino – Division of Environmental Health Services, "On-Site Waste Water Disposal System," dated September 2019.*

Dear Victoria Martinelli:

As requested and authorized, AC Engineering Group, Inc. (ACEGI) has performed a limited feasibility percolation evaluation for the above referenced site located in the city of Pinon Hills area, San Bernardino County, California. This report presents the results of our study, discussion of our findings, and provides preliminary design and construction recommendations for the anticipated onsite septic system.

The opportunity to be of service is sincerely appreciated. If you should have any questions, please do not hesitate to call our office.

Respectfully submitted,

AC Engineering Group, Inc.

REGISTERED PROFESSIONAL ENGINEER
MOKSUDUR RAHMAN
No. 69263
Exp. 09/30/
CIVIL
STATE OF CALIFORNIA

Muksudur Rahman
Project Engineer, RCE 69263

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Septic System Design Requirements

Lot APN No.	Septic Tank Capacity (Gallons)	Gallons of Effluent/ Day	Absorption Rate (MPI)	Absorption Capacity (Sq. Ft. Gal/Day.)	Area Required (Sq. Ft.)	Field Size (Lineal Feet) 36 inch Width	
						Primary (Ft.)	Reserve (Ft.)
3099-231-17-0000	1000	670	5.0*	0.83	556	186	186
	1200	800			664	222	222
	1500	1000			830	277	277

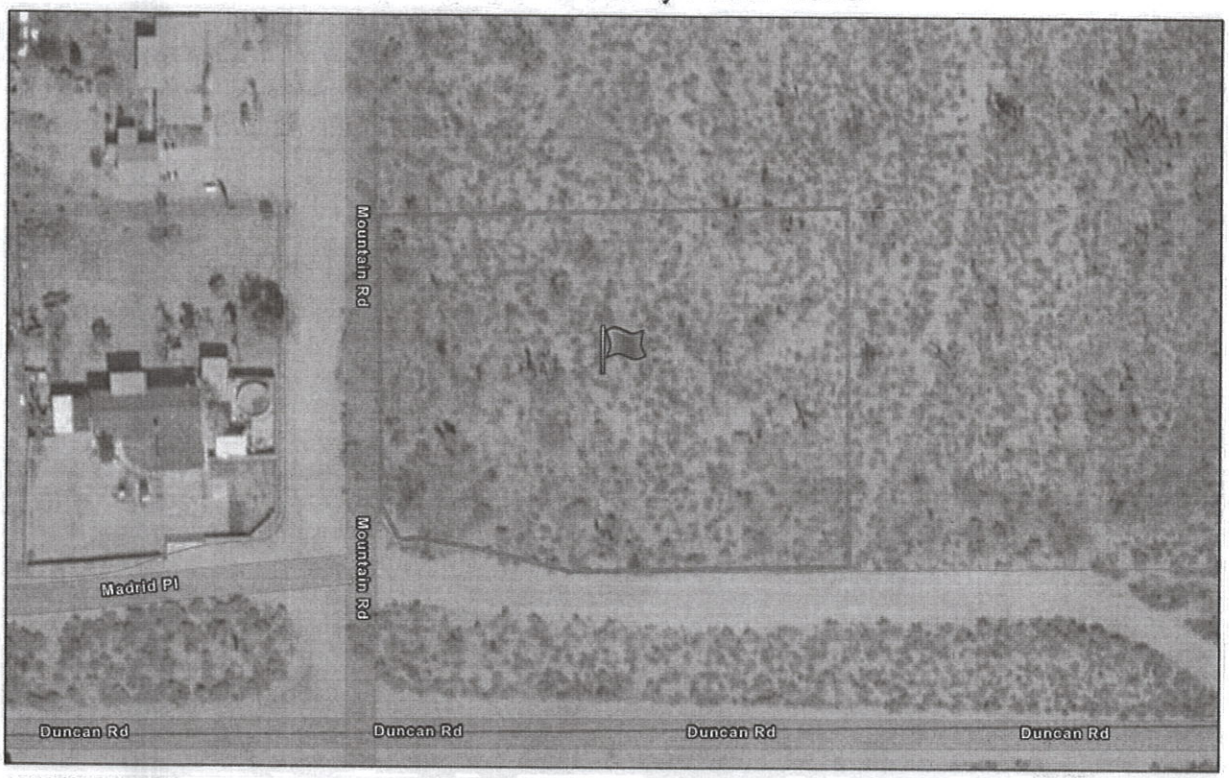
* Preliminary design is based on the most conservative obtained MPI rate.

Use plastic chambers (1000gln) 186 (l.ft.) x 0.80= 149 (l.ft.)
3 lines x 50 (l.ft.) - The same size for 100% expansion
(1200gln) 222 (l.ft.) x 0.80= 178 (l.ft)
3 lines x 60 (l.ft.) – The same size for 100% expansion

Based on the above preliminary data, it is our judgment that the following apply:

There is sufficient area on this site to support an individual sewage disposal system that will meet the current codes and standards of the **Environmental Health Services Division, County of San Bernardino.**
The groundwater table will not encroach within the current allowable limit set forth by county and state requirements.
Leach beds may not be founded in fill soils, only cut materials or undisturbed natural ground.
Leach beds may not be installed under driveways or paved areas.
Minimum soil coverage of 1 foot over the lines is required.
Leach beds should be installed as close to ground surface as possible to promote loss of effluent through evapo-transpiration. Leach lines should be installed along ground contours of equal elevation to maintain uniform depth.
The proposed dwelling should be located so that the primary subsurface sewage disposal system and the required 100 percent expansion system are fed by gravity flow unless otherwise approved by the County.

San Bernardino County Parcel Viewer



2/16/2022, 3:02:34 PM

Override 1 Parcels

Override 1 BLM National Public Land Survey - Township

1:1,128

0 0.01 0.01 0.03 mi

0 0.01 0.03 0.05 km

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San Bernardino County GIS

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DESCRIPTION OF SITE:

1- County of San Bernardino department of health and Public Health (Environmental Health Services)

2- Prepared for:

Victoria Martinelli
12164 Soledad Rd
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Proposed Development:
Installing a new manufactured home, (1344 sq.ft.), 3 bedrooms and 2 baths, on a lot containing **1.56 acres net**.

The **land is relatively slope down southwest to northeast** with slopes 3-4 percent with a general surface drainage to the northeasterly side direction.

Encountered **water course (rain washed area)** crossing south property line to northeast property line.

Vegetation of the site is low shrubby plants and few Joshua trees, the test and building installation area was cleared.

The property is **Vacant land** no fence, no Structure on it.

No **water wells** observed.

No **Rock Outcropping**, the site surface is Silty Sand with loos material on 6-10 inch depth of surface.

Ground water not observed, and **historic ground water** depth per recorded documents is 150-180 feet.

There is none observed any other feature that may affect sewage disposal.

No grading is necessary and proposed building on natural ground with no leveling more than 12 inches on building area.

Proposed disposal system is septic tank via leach lines.

METHODOLOGY AND PROCEDURES:

Pre-Soaking

In the bottom of each hole (8 inches, in diameter), approximately 2 inches of gravel was placed. A full five gallon bottle of clear water was inverted in each hole. Hole is filled continuously to approximately 8 inches over gravel. The water has percolated through the test holes while the tester was present. We proceed test the same day as the pre-soak.

Test:

Testing was performed conforming to the county of San Bernardino, division of Environmental Health services, on-site waste water disposal system technical manual, revised September, 2021.

Per the county of San Bernardino, department of Environmental Health's requirements:

All excavations were made using auger drill backhoe a 6 inch auger was used to excavate the percolation test holes. Screened liners were used to maintain the test holes 6 inch diameter and prevent caving during testing. Indicator rods with floats reading a 1/8" graduated scale were used to measure the water drop.

Water used from water tanks to provide water for the testing process. Percolation testing was performed in 10 minutes intervals over as on hour period. At the end of each 10 minute period the indicators were read, the result noted and the holes refiled to the zero level with water.

The indicators were then returned to the zero position. The zero level or position is the depth at the bottom of the invert of the proposed leach line pipe.

The soil characteristics : Silty Sandy (SM).

Number of exploratory Trenches: 4

The soil profile relatively uniform to depth of excavation (15 ft.).

FIELD EXPLORATION:

The exploratory study was performed in order to determine subsurface soil characteristics and obtain a continuous soil profile to depth of exploration.
After careful observation of the property, representative locations were chosen and the test pits were excavated, to a maximum depth, indicate on test result table. Field percolation testing was performed in accordance with local agency requirements.

The trenching procedure and classification of the soils encountered were monitored by a representative from this office. The soils types were classified according to the Unified Soils Classification System.

Test Results

Test Pit #	Test Pit Depth (ft)	Rate $ft^2/g/day$*	Percolation Rate (Minutes per Inch)	Soil Description
T-1	4.0	N/A	4.5	Silty Sand, Dry
T-2	4.0	N/A	4.5	Silty Sand, Dry
T-3	4.0	N/A	5.0	Silty Sand, Dry
T-4	4.0	N/A	5.0	Silty Sand, Dry

DESIGN RECOMMENDATIONS

Leach line application rates for domestic sewage (Source: EPA's Design Manual, 1980) minimum square feet of absorption area per gallon of effluent per day.

For single homes:

Bedrooms	Gallons of Effluent Per Day	Gallons of Septic Tank Capacity
1-2	500	750
3	670	1,000
4	800	1,200
5-6	1,000	1,500

The following table presents a summary of our septic system design requirements based on the above information and graph for rate.

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MINIMUM HORIZONTAL DISTANCE IN CLEAR REQUIRED FROM:	TO LEACH BED
Building or Structures[1]	8 feet
Property Line	5 feet
Water Supply Wells	100 Feet
Streams	50 feet
Seepage Pits/Cesspools	5 feet
Disposal Field	4 feet
Onsite Domestic Water Service Line	5 feet
Distribution Box	5 feet
Pressure Public Water Main	10 feet
1 – Including porches and steps, whether covered or uncovered, breezeways, roofed porte-cocheres, roofed patios, carports, covered walks, covered driveways and similar structures or appurtenances.	

LIMITATIONS

Soil materials vary in character between excavations. Site conditions may vary due to seasonal changes or other factors. Therefore, we assume no responsibility or liability for work, testing or recommendations performed or provided by others. Site geotechnical or environmental factors, are not part of the scope of this work.

Since our study is based upon the site materials observed, engineering research and analyses, the conclusions and recommendations are professional opinions. These opinions have been derived in accordance with current standards of practice, and no warranty is expressed or implied. Standards of practice are subject to change with time.

APPENDIX A

RESULTS OF PERCOLATION TESTING

APN 3099-231-17-0000
San Bernardino County
California
Project No. PERC12140-21