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TECHNICAL MEMORANDUM

Getaway Outpost Estimated Water Use
2401 Highway 175, Hopland, California 95449
Assessor's Parcel Numbers 048-270-23, -24, and a portion of -22

Date:	October 14, 2020	
Project No.:	9377.00	
Prepared For:	Getaway House, Inc.	
Prepared By:	Rebecca Dalske Planner	
Reviewed By:	Thomas Hunt, PE RCE No. 53327	
Attachments:	Appendix 1: Appendix 2:	Getaway Outpost Sample Water Usage Data Brutocao Vineyards, Inc. Permission to Drill Well

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1.0 INTRODUCTION

Getaway House, Inc. (Client) is proposing the development of a micro-cabin recreational vehicle (RV) facility (Outpost) featuring up to 45 company-owned micro-cabin RVs on an approximately 90.87-acre site located at 2401 Highway 175, Hopland, and identified by Assessor's Parcel Numbers (APNs) 048-270-23, -24, and a portion of -22 (Site). This technical memo has been prepared to provide a technical basis for the estimated water use and wastewater flows for the proposed project.

1.1 Project Description

The Client proposes to develop the Site to serve an Outpost with up to 45 company-owned micro-cabin RVs to be booked for nightly stays. Each micro-cabin RV will be self-contained with a walk-in shower, toilet, mini-refrigerator, 2-top induction stovetop, kitchen sink, and seating area, and will be serviced with private utilities, including 50-amp electricity, water, septic, and heating and air conditioning. The micro-cabin RVs are essentially tiny houses on wheels and will be built by off-site builders who are Recreational Vehicle Industry Association (RVIA)-certified and follow both RVIA and American National Standards Institute (ANSI) standards for the construction of RVs and Park Model RVs. Currently, the three versions of the Client's micro-cabin RVs include a 142-square-

foot 2-person micro-cabin RV, a 159-square-foot 4-person micro-cabin RV, and a 176-square-foot 2-person accessible micro-cabin RV.

Associated improvements include the development of primary and secondary Site access roads, which includes improvement of an existing access road and the additional of secondary access roads; construction of a new off-site electric utility power feed from Highway 175 to the lodge site; micro-cabin RV pads for up to 45 micro-cabin RVs; a two-story, 1,344-square-foot building (lodge facility) to house a full-time residence for an on-site manager on the second floor, with the bottom floor comprised of a small office and storage area for daytime staff, an accessible restroom, meeting room, and a laundry area for micro-cabin RV linens; a carport; walking trails; on-site underground utility line (electricity, water, and wastewater system) installation and connections to the lodge, cabins, and the water and wastewater treatment facilities; construction of on-site water treatment facility; construction of a wastewater collection system and on-site package treatment with a subsurface treated effluent disposal systems; installation of an emergency water storage tank and water distribution system which includes fire hydrants and potable water connections to the cabins and lodge; construction of a private well on the adjacent agricultural land; and an off-site underground water line, with a booster pump station connecting the proposed well to the on-site water treatment system.

1.2 Estimated Occupancy

Based on data from existing Outposts, the Applicant estimates a yearly average occupancy rate of 85 percent, with an average length of stay of 1.5 nights per stay. The 2-person micro-cabin RVs would accommodate up to 2 guests (with one queen bed) and the 4-person micro-cabin RVs (with two queen beds, bunked) would accommodate a maximum of 4 guests at a time.

In addition, the project will be operated by a full-time General Manager, a full-time Facilities Manager who will reside on-site in the proposed lodge facility, and six (6) to eight (8) part-time housekeeping staff supported by company operations based in California and New York.

2.0 EVALUATION

2.1 Water

2.1.1 Estimated Water Demand

An estimate of water demand in gallons per day (GPD) for the proposed development is summarized below in Table 1, which indicates the water supply system will require a flow capacity of at least 4,073.50 GPD. The estimated water demand for the proposed project is based on data collected from operational Outposts with a similar number of cabins as the proposed project. These estimates are based on the use of low flow plumbing fixtures, including shower heads, faucets, and toilets, which would be installed as part of the proposed project.

Table 1: Summary of Proposed Facility's Estimated Water Demand

Type of Occupancy	Number of Units	GPD/Unit	GPD
Micro-cabin RV Recreational Vehicle[1]	45	54.3	2,443.50
Managers Unit[1]	2-bedroom residence	400	400
First-floor Laundry area[2]	36 loads	30	1,080
First-floor Employee restroom[3]	10 employees	15	150
		TOTAL GALLONS PER DAY	**4,073.50**

[1]*Based on water usage estimates provided by Getaway Outpost study*
[2]*Based on commercial washing machine water usage data provided for proposed units*
[3]*Based on water flow of fixtures to be installed*

2.1.2 Water Balance

The average rainfall for the Hopland area is 36.8 inches per year (278 acre-feet per year) or in a drought year, approximately 91 acre-feet per year. The expected evapotranspiration is only 5-percent due to the terrain, clay soil, and shallow sandstone bedrock. The terrain of the Site varies in slope from 2-percent to 5-percent in the upper area of the Site that is currently proposed for development to 25-percent to 35-percent on the slopes that are not proposed for development and will remain in their natural state, with an average slope of approximately 10-percent.

The volume of rainfall runoff anticipated at the Site is equivalent to 265 acre-feet per year (86.2 million gallons). This value is based on 36.8 inches of expected annual rainfall multiplied by the 90.87 acres, less 5-percent for evapotranspiration. Rainfall at the Site would flow downslope into McDowell and Dooley Creeks along the east and northerly edges of the Site, and on the west into the Sanel valley where runoff percolates into the aquifer below the valley floor or runs off into Dooley Creek. Based on Standard D12 of the 2008 *Road and Development Standards* of the County of Mendocino Department of Transportation (DOT), using an average slope for the Site of approximately 10-percent, the Site would have a runoff coefficient of 0.40, meaning that approximately 60-percent (51.7 million gallons) of the volume of rainfall runoff anticipated at the Site may percolate into the Sanel valley aquifer by rainfall runoff from the watershed of the Site. Assuming only 40-percent of that total is available for recharge in a drought, the available water would be 20.69 million gallons per year (GPY) or 0.057 million GPD contributed by the seasonal rainfall from the watershed of the Site, which is approximately 10 times the projected water usage of the proposed project, as provided above and elaborated upon below.

As discussed above, the proposed project would be anticipated to require approximately 4,073.50 GPD. It is anticipated that the majority (85-percent) of water would be utilized for toilets, showers, sinks, and laundry, which would be disposed of in the on-site wastewater disposal system (OWTS) and percolated back into the on-site soils following treatment in the OWTS. At 85-percent occupancy (the yearly average occupancy for Getaway Outposts), approximately 1.26 million GPY (3.9 acre-feet per year) would be anticipated to be used by the proposed project. Compared to the available watershed runoff of 20.7 million GPY in a drought year, the proposed project would use approximately 6.1-percent of the available watershed runoff into the aquifer in

an average drought year, and only 2.4-percent of the available watershed runoff in an average rainfall year.

For comparison, data prepared by the University of California Agriculture and Natural Resources (UCANR, 2014) states that in Lake County, the irrigation required for a typical vineyard is 8 to 11 inches of water per acre, plus an additional 6 inches of water per acre if frost protection is required. These volumes are equivalent to 0.22 to 0.30 million GPY per acre for irrigation and an additional 0.17 million GPY per acre for frost protection. Based on these values, a typical vineyard would require approximately 0.38 to 0.47 million GPY per acre. Based on these values, the water usage per year of the proposed project would be equivalent to the irrigation and frost protection of 2.72 to 3.30 acres of vineyard if it were planted at the Site.

2.1.3 Proposed Water Source

Domestic water will be provided to the Outpost and lodge facility via a proposed well to be located west of the Site in the Sanel Valley floor in the vicinity of existing producing agricultural wells and private water system. Brutocao Vineyards, Inc. has granted the Applicant permission to drill a well on an adjacent property owned by Brutocao Vineyards, on one of three parcels (identified by APNs 048-270-021, 048-270-020, and 048-260-050). Under the agreement dated January 9, 2020, the water is to be used solely by the Client for the project, is nontransferable, is not to be used for agriculture, and the amount of water to be pumped is not to exceed 5,000 gallons per day.

2.1.4 Proposed Water System

The project proposes a greater number of service connections than the number permitted by the local agency, the Mendocino County Division of Environmental Health (MCDEH). Therefore, the proposed water system will be permitted through the State Water Resources Control Board (SWRCB) Division of Drinking Water as a transient non-community water system and will be subject to the standards and monitoring requirements set by Federal and State laws, including but not limited to, public health standards of Title 22 of the California Code of Regulations (CCR) and the California Safe Drinking Water Act. Compliance with the required water supply permit includes ongoing monitoring of the water system and annual reports to be submitted to the SWRCB. Construction of the new well will be permitted through the MCDEH and will be constructed in accordance with the California Well Standards (Department of Water Resources Bulletin 74-90).

The project water system will include a raw water supply pipe with booster pumps to supply a raw water storage tank at the upper elevation of the project area. The anticipated volume of the raw water tank is estimated to be 6,000 gallons together with a 20,000 gallon tank for the treated water storage and emergency supply. The water tanks are to be constructed using materials that meet appropriate CalFire standards,]. The 20,000 gallon tank will include standby water volume for fire flow to on-site hydrants, the fire sprinkler system in the lodge facility, and the supply for daily flow of the treated water for use by the micro-cabin RVs and lodge facility. As required in the conditions received from CalFire on January 15, 2020, and as requested by the Hopland Fire Protection

District in a June 25, 2020 email, a minimum 10,000 gallons of dedicated water storage will be provided on-site for emergency water use and is included in the 20,000-gallon tank mentioned previously. Although the micro-cabin RVs are exempt from fire sprinklers, a fire supply riser will be placed within 150 feet of each proposed micro-cabin RV pad.

Installation of the well will require the construction of an off-site underground water line to connect the proposed well to the on-site water storage and treatment system and the establishment of an access easement for ongoing maintenance and operation of the well. The proposed raw water line will be approximately 2,600 feet in length and will be installed adjacent to or within the existing access road that generally follows the southwest-northeast tree line located southwest of the Site. A small treatment building will be constructed adjacent to the raw water tank to house the booster pumps, or transfer pumps, and supply the pressurized water to the water distribution system and hydrants. A water treatment system will also be housed in the small treatment building to provide filtration as needed, according to water quality from the well source and disinfection requirements to meet public health standards required by Title 22 of the CCR. The water treatment system will likely be a package unit to be determined upon a review of the water quality analysis. Treated water will be stored for distribution in a 20,000-gallon tank located next to the small treatment building and will be connected to a booster pump system and pressure tank for pressurization of the water system. The water mains will be constructed of C900 and schedule 40 PVC and HDPE water service piping, and will be buried under the access roads, micro-cabin RV driveways, and walking access paths to the extent feasible. Each of the micro-cabin RVs will be connected to the potable water system via a no-freeze assembly manufactured by Thermaline.

2.2 Wastewater

Wastewater will be managed using a proposed on-site wastewater pre-treatment and treated effluent disposal system. Wastewater generated at each of the micro-cabin RVs and the lodge facility will be gravity fed into septic tank/pump basin units serving up to 3 or 4 micro-cabin RVs, and the lodge facility, together with joint lift stations, as needed, to a series of septic tanks and into a centralized wastewater treatment module. Treated effluent will be disposed of using a pressurized drip irrigation system to be placed in the basin in the central portion of the Site where the most suitable soils for septic system treatment and percolation exist on the Site.

2.2.1 Estimated Flows

An estimate of wastewater flows in gallons per day (GPD) for the proposed development is summarized below in Table 2, which indicates flows to the on-site wastewater system (OWTS) will be approximately 4,073.50 GPD, based on the estimated water demands.

Table 2: Summary of Proposed Facility's Estimated Wastewater Flows

Type of Occupancy	Number of Units	GPD/Unit	GPD
Micro-cabin RV Recreational Vehicle[1]	45	54.3	2,443.50
Managers Unit[1]	2-bedroom residence	400	400
First-floor Laundry area[2]	36 loads	30	1,080
First-floor Employee restroom[3]	10 employees	15	150
		TOTAL GALLONS PER DAY	**4,073.50**

[1]Based on water usage estimates provided by Getaway Outpost study
[2]Based on commercial washing machine water usage data provided for proposed units
[3]Based on water flow of fixtures to be installed

2.2.2 Septic System Sizing Criteria

It should be noted that the septic system to serve the proposed development will need to be designed for a minimum flow capacity of 6,030 gallons of wastewater per day (GPD) in accordance with the County of Mendocino 1991 Uniform Plumbing Code (Plumbing Code), and as shown in Table 3, below. Based on the water use estimates presented in Table 1 above, and as shown in Table 2, above, wastewater flow estimates based on the Plumbing Code do not meet the specific usage profile, and are more than the anticipated daily flows of a Getaway House Outpost. This discrepancy may be due, in part, to the unique construction and function of the micro-cabin RVs and the improvement in water usage of toilet and shower facilities, which have not been recognized in an updated table of flow estimates since the 1991 Plumbing Code was written. The Plumbing Code provides guidance to use 100 GPD/RV unit with water and sewer hook-up; however, as the proposed micro-cabin RVs are to be utilized for temporary overnight occupancy, the actual wastewater flows have been observed to be 54.3 GPD/unit at multiple Getaway Outposts, as described above.

Table 3: Summary of Septic System Sizing Criteria

Type of Occupancy	Number of Units	GPD/Unit	GPD
Micro-cabin RV Recreational Vehicle[1]	45	100	4,500
Managers Unit[1]	2-bedroom residence	150	300
First-floor Laundry area[2]	36 loads	30	1,080
First-floor Employee restroom[3]	10 employees	15	150
		TOTAL GALLONS PER DAY	**6,030**

[1]Based on the County of Mendocino 1991 Uniform Plumbing Code
[2]Based on Commercial washing machine water usage data provided for proposed units
[3]Based on water flow of fixtures to be installed

3.0 CONCLUSION

Based on the information presented in this technical memo, the following can be concluded:

- The proposed water system will have the ability to supply 4,073.50 GPD adequately serving the up to 45 micro-cabin RVs and lodge facility, while not exceeding the 5,000 GPD water usage allotment set by Brutocao Vineyards, to serve the proposed development.
- Based on the available watershed runoff from the Site and the anticipated water use of the proposed project of 4,073.50 GPD, the estimated water usage per year of the proposed project would be comparable to the irrigation and frost protection of 2.72 to 3.30 acres of vineyard if it were planted at the Site. The Site currently has approximately 3.5 to 4 acres of potentially plantable area on gentle slopes (2 to 5 percent slope), with the potential to allow for additional plantable area on the steeper slopes (up to 35 percent slope) if it was desired to be developed with a vineyard, which is a Permitted Use, and thereby not subject to discretionary review, on the Site per Section 20.060.010 (adopted 1987) of the Mendocino County Code.
- The proposed waste-water collection and treatment system will be able to handle the anticipated flows of 4,073.50 GPD, while meeting a design flow of 6,030 GPD, as required by the Mendocino County Environmental Health guidelines for waste water flow;
- The proposed project will also provide double the water storage capacity recommended by CalFire and the HFPD as a minimum for fire protection of the project area, while also providing a fire hydrant with 150 feet of temporary and permanent structures, and a flow for fire sprinklers serving the Lodge building.

4.0 REFERENCES

County of Mendocino. Adopted 1999. *Code of Ordinances: Chapter 20.060 – R-L Rangeland District*. Available at: https://library.municode.com/ca/mendocino_county/codes/code_of_ordinances?nodeId=MECOCO_TIT20ZOOR_DIVIMECOZOCO_CH20.060RADI

County of Mendocino Department of Transportation. August 14, 2008. *Road and Development Standards*. https://www.mendocinocounty.org/home/showdocument?id=6374

County of Mendocino Division of Environmental Health. September 1992. *County of Mendocino 1991 Uniform Plumbing Code, Private Sewage Disposal Systems*. Available at: https://www.mendocinocounty.org/home/showdocument?id=2852

University of California Agriculture and Natural Resources (UCANR). December 1, 2014. *Vineyard Water Use in Lake County, California*. Available at: http://www.lakecountywinegrape.org/wp-content/uploads/2014/08/Lake-County-Vineyard-Water-Use-UC-Cooperative-Extension-December-1-2014.pdf

APPENDIX 1

Getaway Outpost Sample Water Usage Data

LACO

Sample Water Usage Data

The numbers below are based on sample water usage data for cabins, the lodge, & residence.

Shower Head: 1.25gpm
Kitchen Faucet: 1.50gpm
Toilet: 1.28gpf

Cabin Totals	
Total cabins tested	20
Test period occupancy rate	62%
Start date	12/31/17
End date	4/12/18
Total gallons used	35,675.5
Total occupied nights	765
2-person avg. gallons/day	36.7
2-person avg. gallons/occupied night	52.8
4-person avg. gallons/day	23
Total avg. gallons/day	**32.7**
Total avg. gallons/occupied night	**54.3**

Lodge & Residence Totals	
Number of Washers in Lodge at 40 cabin Outpost	2
30 avg. loads of laundry @ 30 avg. gallons load/day	900
2-4 person residence avg. gallons/day	400
Total avg. gallons/day	**1,300**

Site Totals	
Cabins total avg. gallon/occupied night at 40 cabin Outpost	2,172
30 avg. loads of laundry @ 30 avg. gallons load/day	900
2-4 person residence avg. gallons/day	400
Total site avg. gallons/days	**3,472**

APPENDIX 2

Brutocao Vineyards, Inc. Permission to Drill Well

1/9/20

Brutocao

Getaway House Inc.

147 Prince St.

Brooklyn, NY 11201

518-878-6496

Nico@getaway.house

To Whom it May Concern:

I, Steve Brutocao, representing Brutocao Vineyards Inc, acknowledge that in the event Getaway House may not be able to successfully drill a well on the property under contract, will hereby agree to allow Getaway House Inc. to drill a well on an adjacent property owned by Brutocao Vineyards. The specific location to be determined, but would be located on one of the following three parcels, 0482702100, 0482702000, or 0482600500. The water will be used for Getaway House inc. only, is not transferrable and is not to be used for agriculture. The amount of water to be pumped is not to exceed 5000 gals per day.

Sincerely,

Steven J. Brutocao

CEO, Brutocao Vineyards and Cellars