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Wastewater Feasibility Report

Pridmore Property
General Plan Amendment P17-00135
Rezone P20-00223 and Use Permit P20-00222
Planning Commission Hearing May 15, 2024

Attachment “A”

Domestic & Production Wastewater Feasibility and Calculations

Site Map

Please see the Use Permit Site Plan and Wastewater Plan which has been included with this submittal. The said map shows the existing wastewater system as well as the proposed improvement to the said wastewater system.

Existing Wastewater System Conditions

The existing school buildings are served by an existing conventional wastewater system which consists of a 1500 gallon septic tank and 600 feet of rock and pipe type leach field with a 30" deep trench. The existing wastewater system is functioning well and historically served the school without issue.

Existing Wastewater System Flows & Analysis

Given the above leach field data the existing leach trench nets an absorption area of 1 square foot per linear foot. Given that the soil has an infiltration rate of 1/3 gallon per square feet per day and the limiting layer is over 76" deep, this system can easily handle a peak flow of 600 gallons of wastewater per day. Please note that by today's standards the system is undersized for the historical schools calculated peak flow of 1869 gallons per day. By today's standards the existing system can handle a peak flow of 600 gallons per day, thus the existing system must be expanded to facilitate the proposed uses.

Proposed Wastewater Flows & Analysis

With respect to the wastewater system the proposed uses contributing to the peak flow are as follows: 4 full time employees at 15 gallons per day (60 gallons per day total), 4 single bedroom lodging units with low flow fixtures and no laundry machines at 106 gallons per bedroom per day (424 gallons per day total), 5 double bedroom lodging units with low flow fixtures and no laundry machines at 106 gallons per day (1060 gallons per day total), 1 caretaker unit at 120 gallons per day, large events of 150 people at 3 gallons per person (450 total gallons per large event), and lastly small events of 60 people at 3 gallons per person (180 total gallons per small event). Please note that the lodging units flow per bedroom was downgraded 14 gallons per day because no laundry machines are proposed in these units and a single high efficiency California approved energy star washing machine uses 14 gallons per load. Thus the lodging units flow was downgraded from 120 gallons per day to 106 gallons per day. It is likely that the flow per bedroom could have been downgraded further due to the transient nature of the tourist lodging, but it seemed prudent to stay conservative. Based on the above numbers the total maximum peak flow rate at full capacity (not including events) is 1664 gallons per day. The additional wastewater flows from small and large events will be addressed with temporary bathroom facilities, such as porta-potties. Thus the onsite system will need to be able to handle a peak flow of 1664 gallons per day. The existing leach field can handle 600 gallons per day thus the proposed leach field must be expanded to handle the additional 1064 gallons per day.

Proposed Wastewater Improvements

Based on the above analysis an additional 560 feet of leach field is proposed with a trench depth of 48 inches which nets an absorption area of 6 square feet per linear foot of trench.

Given that the soil has an infiltration rate of 1/3 gallon per square feet per day this means that the proposed 560 feet of trench can handle a peak flow of 1120 gallons per day which is more than the required 1064 gallons per day. Prior to entering the leach field, wastewater will go to a centralized system of septic tanks with a total volume of 6000 gallons. This will net a hydraulic retention time of more than 3 days, at which point the treated effluent will pass into a 2000 gallon pump tank with a duplex pumping system. From the pump tank the treated effluent will be pumped out to the aforementioned proposed and existing leach field.

Summary and Conclusions

The proposed wastewater improvements coupled with the existing wastewater infrastructure will be more than enough to handle the wastewater flow produced by the proposed use.



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1607 Capell Valley Road
Napa, CA 94558
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Historical Wastewater Flow Calculations
 for the
 Capell School Lodging Project

Located at:
 1191 Capell Valley Road
 Napa, CA 94558

Date: 7/22/2020

Project # 00055

Legend

Requires Input
Automatically Calculates
Important Value Automatically Calculate
Important Value Requires Input

Hit ctrl + alt + shift + F9 when finished to recalc all formulas

Historical Waste Flow Summary

The subject property used to be a public school with a peak attendance of 90 students, 3 teachers, 2 part time aids and a part time grounds keeper. The calculated flows below are based on this.

Historical School Peak Domestic Waste Flow Calculations

Historical Student Peak Student Domestic Waste Flows

Estimated peak number of students attending =	90	#
Peak wasteflow per student =	20.00	gal/day/std
Peak Student Waste Flow =	1800.00	gal/day

Historical School Peak Employee Domestic Waste Flows

Peak Employee Waste Flows		
Number of FT Employees =	3	#
Number of PT Employees =	3	#
FT employee daily domestic waste flow =	45.00	gal/day (15 g/p)
PT employee daily domestic waste flow =	24.00	gal/day (8 g/p)
Peak Employee Waste Flows =	69.00	gal/day

Total Combined Domestic Waste Flows =	1869	gal/day
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Historical School Annual Waste Flow Volume Calculations

Historical Student Average Domestic Waste Flows

Estimated peak number of students attending =	90	#
Ave wasteflow per student =	10.00	gal/day/std
Ave Student Waste Flow =	900.00	gal/day
Total Design Peak Domestic Waste Flows =	328500	gal/yr

Historical Employee Average Domestic Waste Flows

Peak Employee Waste Flows		
Number of FT Employees =	3	#
Number of PT Employees =	2	#
FT employee daily domestic waste flow =	22.50	gal/day (8 g/p)
PT employee daily domestic waste flow =	8.00	gal/day (4 g/p)
Total Dimestic Flow =	30.50	gal/day
Total Design Peak Domestic Waste Flows =	11133	gal/yr

Historical Average Event Domestic Waste Flows

Special Event Volumes	visitors	days/yr	flow/day	gallons
Large Events =	200	4	5	4000
Medium Events =	50	12	5	3000
Other =			5	0
Other 2 =			5	0
Total Annual Event Visitor Waste Volume =	7000	gal/year		
Total Annual Waste Flow Volume =	346633	gal/yr	1.06	af



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Important Value Requires Input

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Waste Flow Summary

The existing school wastewater system was under designed to handle a peak flow of 600 gallons per day of domestic wastewater. The proposed change in use will exceed this amount thus an additional wastewater system will be required. All proposed events will be serviced by portable toilets.

Peak Domestic Waste Flow Calculations

Proposed Lodging Units Peak Domestic Waste Flows

Total number of single bedroom lodging units =	4	lodging units
Total number of double bedroom lodging units =	5	lodging units
Total number of single bedroom caretaker units =	1	caretaker units
Peak wasteflow per lodging bedrooms =	106.00	gal/day/br
Peak wasteflow per care taker bedrooms =	120.00	gal/day/br
Peak Lodging Units Domestic Waste Flow =	1604.00	gal/day

Proposed Employee Peak Domestic Waste Flows

Peak Employee Waste Flows

Number of FT Employees =	4	#
Number of PT Employees =	0	#
FT employee daily domestic waste flow =	60.00	gal/day (15 g/p)
PT employee daily domestic waste flow =	0.00	gal/day (8 g/p)
Peak Employee Waste Flows =	60.00	gal/day

Total Combined Domestic Waste Flows =	1664	gal/day
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Annual Waste Flow Volume Calculations

Average Lodging Units Domestic Waste Flows

Total number of single bedroom lodging units =	4	lodging units
Total number of double bedroom lodging units =	5	lodging units
Total number of single bedroom caretaker units =	1	caretaker units
Total bedroom (br) count =	15	br
Average wasteflow per bedroom =	50.00	gal/day/br
Total Design Peak Domestic Waste Flows =	750.00	gal/day
Total Design Peak Domestic Waste Flows =	273750	gal/yr

Average Employee Domestic Waste Flows

Peak Employee Waste Flows

Number of FT Employees =	4	#
Number of PT Employees =	0	#
FT employee daily domestic waste flow =	30.00	gal/day (7.5 g/p)
PT employee daily domestic waste flow =	0.00	gal/day (4 g/p)
Employee Domestic Flow =	30.00	gal/day
Total Design Peak Domestic Waste Flows =	10950	gal/yr

Average Event Domestic Waste Flows

Special Event Volumes	visitors	days/yr	flow/day	gallons
Large Events =	150	6	3	2700
Medium Events =	60	12	3	2160
Other =			3	0
Other 2 =			3	0
Total Annual Event Visitor Waste Volume =	4860	gal/year		
Total Annual Waste Flow Volume =	289560	gal/yr	0.89	af

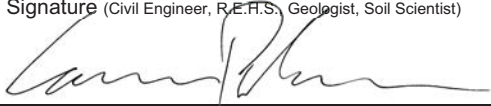
Please attach an 8.5" x 11" plot map showing the locations of all test pits triangulated from permanent landmarks or known property corners. The map must be drawn to scale and include a North arrow, surrounding geographic and topographic features, direction and % slope, distance to drainages, water bodies, potential areas for flooding, unstable landforms, existing or proposed roads, structures, utilities, domestic water supplies, wells, ponds, existing wastewater treatment systems and facilities.

Permit #: E18-00442
APN: 032-130-026
(County Use Only) Reviewed by: _____ Date: _____

PLEASE PRINT OR TYPE ALL INFORMATION

Property Owner Pridmore	<input checked="" type="checkbox"/> New Construction <input type="checkbox"/> Addition <input type="checkbox"/> Remodel <input type="checkbox"/> Relocation <input type="checkbox"/> Reserve <input type="checkbox"/> Other: _____
Property Owner Mailing Address 1305 Capell Valley RD	<input type="checkbox"/> Residential - # of Bedrooms: _____ Design Flow : _____
City State Zip Napa CA 94558	<input checked="" type="checkbox"/> Commercial – Type: _____ Sanitary Waste: TBD gpd Process Waste: _____ gpd <input type="checkbox"/> Other: _____ Sanitary Waste: _____ gpd Process Waste: _____ gpd
Site Address/Location 1283 Capell Valley RD, Napa Ca 94558	

Evaluation Conducted By:

Company Name CMP CIVIL ENGINEERING & LAND SURVEYING	Evaluator's Name Cameron Pridmore	Signature (Civil Engineer, R.E.F.S., Geologist, Soil Scientist) 
Mailing Address: 1607 Capell Valley Road	Telephone Number (707) 815-0988	
City State Zip Napa CA 94558	Date Evaluation Conducted 6/12/2018	

<u>Primary Area</u>	<u>Expansion Area</u>
Acceptable Soil Depth: 76-84 in. Test pit #'s: 1, 2, & 3	Acceptable Soil Depth: 76-83 in. Test pit #'s: 4 & 5
Soil Application Rate (gal. /sq. ft. /day): 0.33	Soil Application Rate (gal. /sq. ft. /day): 0.33
System Type(s) Recommended: Conventional	System Type(s) Recommended: Conventional
Slope: 1 % Distance to nearest water source: >100 ft.	Slope: 1 % Distance to nearest water source: >100 ft.
Hydrometer test performed? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (attach results)	Hydrometer test performed? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (attach results)
Bulk Density test performed? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (attach results)	Bulk Density test performed? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (attach results)
Groundwater Monitoring Performed? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (attach results)	Groundwater Monitoring Performed? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (attach results)
Site constraints/Recommendations:	

Test Pit # **1**

PLEASE PRINT OR TYPE ALL INFORMATION

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-84	BOT	10	CL	SAB	S	FRB	SS	CM	CF	NO

Test Pit # **2**

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-80	BOT	10	SCL	SAB	S	FRB	SS	CM	CF	NO

Test Pit # **3**

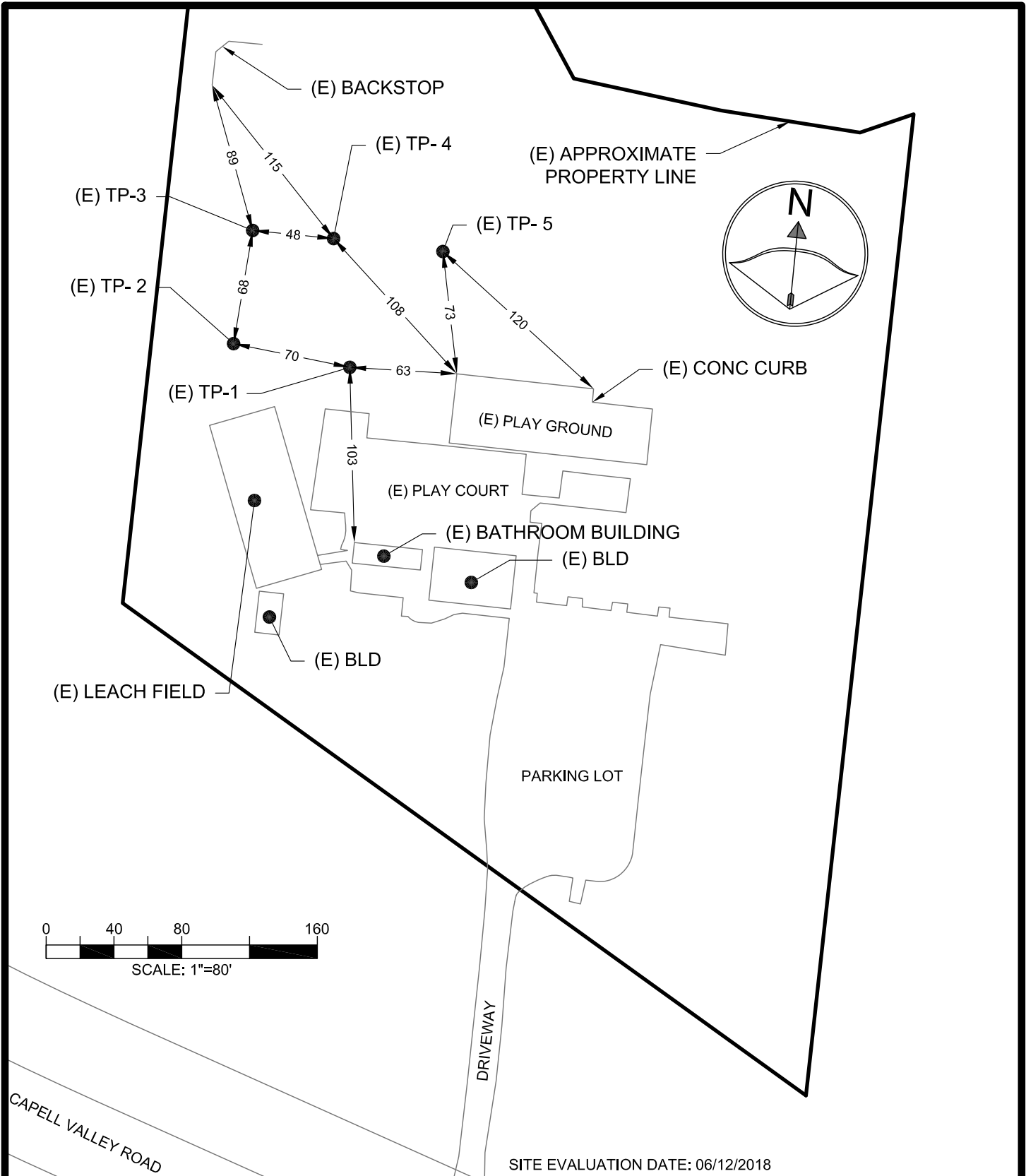
Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-76	BOT	10	CL	SAB	S	FRB	SS	CM	CF	NO

Test Pit # **4**

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-83	BOT	10	CL	SAB	S	FRB	SS	CM	CF	NO

Test Pit # **5**

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-76	BOT	10	CL	SAB	S	FRB	SS	CM	CF	NO



<p>TEST PIT MAP</p> <p>SHEET: 3 OF 3</p>	<p>PROJECT INFO:</p> <p>PRIDMORE PROPERTY 1283 CAPELL VALLEY RD NAPA, CA 94558 APN: 032-130-026</p>	<p>PREPARED BY:</p> <p>CAMERON PRIDMORE PE, PLS 1607 CAPELL VALLEY ROAD NAPA, CA 94558 (707) 815-0988</p> <p>P #: 00055 DATE: 06/26/2018</p>	
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