Excel spread sheet set up to show maximum daily wastewater flows and that a system set up to treat and dispose of up to 6000 gallons a day is adequate to handle them

DAY	DAY VISITORS (15 GPD)	STAFF (15 GPD)	CAMPERS (35 GPD)	GALLONS OF WASTEWATER	GALLONS PUMPED	GALLONS LEFT IN TREATMENT TANK
FRIDAY	500	2	0	7530	6000	1530
SATURDAY	212	2	48	4890	6000	420
SUNDAY	364	2	48	7170	6000	1590
MONDAY	212	5	48	4935	6000	525
TUESDAY	212	5	48	4935	6000	-540
WEDNESDAY	212	5	48	4935	6000	-1605
THURSDAY	212	5	48	4935	6000	-2670
TOTAL	1924	26	288	39330	42000	

Attendance notes by Kim Tschantz, MSP, CEP of Cypress Environmental and Land Use Planning

Note for Friday: The 502 figure (500 a day-users + 2 staff) represents maximum attendance during special events, which will only occur 4 times/year. Two special event days will be on Friday and the other two on a weekend day. No summer camp sessions will occur during a special event day. Normally, Friday maximum attendances will be 302; or 350 if occurring during a summer camp session.

Note for Saturday: The 262 figure (212 day-users + 2 staff + 48 summer campers) represents maximum attendance on a Saturday.

Note for Sunday: The 414 figure (362 day-users + 2 staff + 48 summer campers) represents maximum attendance on a weekend when either a wedding or a funeral service is held. Sunday attendance includes Youth Sunday School which does not occur on Saturday.

Note for Monday--Thursday: This figure (217 day-users + 48 summer campers) represents maximum attendance when there could be up to 200 people attending all prayer service that day and 12 other people at a scheduled meeting in the community building and the summer youth camp is occurring and 5 weekday staff are also on the site.

Excerpt from County's Onsite Manual

3. Flow Equalization. Flow equalization may be used for non-residential and mixed use facilities that experience significant, regular and predictable fluctuations in wastewater flows. Examples of applicable facilities include, but are not limited to:
Churches
Schools
Special event venues
Flow equalization is the process of controlling the rate of wastewater flow through an OWTS by providing surge capacity storage and timed-dosing of the incoming flow. Installed following the septic tank, it allows peak surges in wastewater flow (e.g., from a weekend event) to be temporarily stored and metered into the treatment system and/or dispersal field at a relatively even ("average") rate over an extended number of days (e.g., during the subsequent week). This generally aids OWTS performance. Where flow equalization is proposed to be incorporated in an OWTS the following apply:
a. the septic tank capacity shall be sized based on the peak daily flow for the facility;
b. the design flow used for sizing supplemental treatment unit(s) and/or the dispersal field may be based on the equalized ("average") flow rate rather than the peak daily flow rate for the facility;
c. engineering calculations and specifications must be submitted substantiating the proposed design and operation of the flow equalization system; and
d. an operating permit (per OWTS Ordinance section B11-92) will be required.

Note:
Vehicles will not be washed on site except for golf cart type vehicles located in inside their covered storage area, there will be no significant wastewater generated by this process.

ALTERNATIVE SYSTEMS

The septic systems shown here incorporate the use of NSF 40 certified treatment units (a Multiflo) and shallow drip system dispersal of effluent to enhance the treatment of this wastewater stream and reduce any potential pollutants before they can contaminate the ground water.

The drip disposal system was designed using Geoflow (manufacturer of the the drip tubing and much of he hardware) and County criteria. Excel spreadsheets with design criteria are attached.

The treatment system is NSF 40 certified and a supplement for the owner and /County contains the operation and maintenance guidelines for it.

Since these are alternative systems in Santa Clara County, the County requires that the owner obtain an operating permit from them (has to be renewed every year and has annual fees) and hire a company to maintain the system as a condition of issuing the permit to allow its installation.

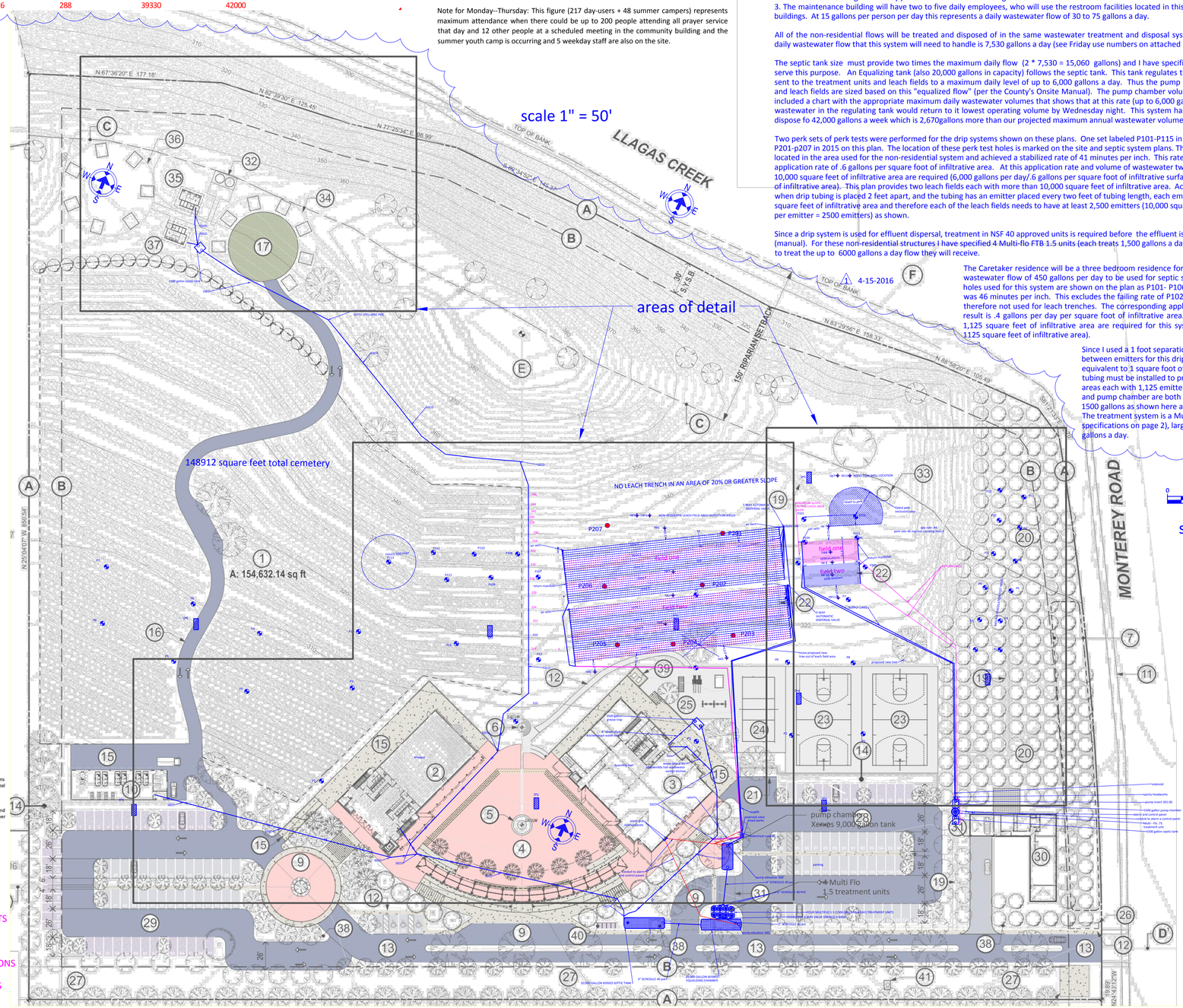
from County Onsite Manual

4. **Dripfield Sizing.**

a. Minimum sizing of the dripfield area shall be equal to the design wastewater flow divided by the applicable wastewater application rate from **Table DD-1.**

b. For sizing purposes, effective ground surface area used for drip field sizing calculations shall be limited no more than 4.0 square feet per drip emitter. For example, 200 lineal feet of dripline with emitters at 2-foot spacing would provide a total of 100 emitters (200/2) and could be used for dispersal to an effective area of up to 400 ft^2 (100 emitters x 4 ft^2/emitter). Conversely, if wastewater flow and percolation design information indicate the need for an effective area of 1,000 ft^2, the dripline design and layout would have to be configured to provide a minimum of 250 emitters spaced over the required 1,000 ft^2 dispersal area.

PAGE KEY



PROJECT DISCUSSIONS

This plan was prepared to show where septic leach fields and septic tanks can fit and how they will be installed on this property to serve the expected volumes of wastewater. There are two classes of wastewater to be generated on this site, non-residential and residential.

The non-residential wastewater flow is composed of the flow from the campsite bathrooms, the maintenance building, the Mosque, and the Community Building. The maximum daily wastewater flow is based on the projected maximum number of users times the estimated flow from the associated activity from **Table 3-2, Wastewater Design Flow Guidelines, Multiunit and Non-residential Facilities** found in the County's **Onsite System Manual**.
1. The main buildings are expected to have water use similar to a church with a kitchen (15 gallons per day per person). The expected daily maximum attendance is discussed in the attached notes from Cypress Environmental and land Use Planning, and shown in the attached Excel Spreadsheet.
2. The Camp area has two bathrooms and will serve a total of no more than 48 people a day. The camp area bathrooms represent a possible wastewater flow of 35 gallons a day per visitor for a total of 1680 gallons.
3. The maintenance building will have two to five daily employees, who will use the restroom facilities located in this and other non-residential buildings. At 15 gallons per person per day this represents a daily wastewater flow of 30 to 75 gallons a day.

All of the non-residential flows will be treated and disposed of in the same wastewater treatment and disposal system. The total maximum daily wastewater flow that this system will need to handle is 7,530 gallons a day (see Friday use numbers on attached Excel Spreadsheet).

The septic tank size must provide two times the maximum daily flow (2 * 7,530 = 15,060 gallons) and I have specified a 20,000 gallon tank to serve this purpose. An Equalizing tank (also 20,000 gallons in capacity) follows the septic tank. This tank regulates the amount of waste water sent to the treatment units and leach fields to a maximum daily level of up to 6,000 gallons a day. Thus the pump chamber, treatment units, and leach fields are sized based on this "equalized flow" (per the County's Onsite Manual). The pump chamber volume is 9000 gallons. I have included a chart with the appropriate maximum daily wastewater volumes that shows that at this rate (up to 6,000 gallons a day) the volume of wastewater in the regulating tank would return to it lowest operating volume by Wednesday night. This system has the capacity to treat and dispose fo 42,000 gallons a week which is 2,670gallons more than our projected maximum annual wastewater volume week (39,330 gallons).

Two perk sets of perk tests were performed for the drip systems shown on these plans. One set labeled P101-P115 in 2014 and the other as P201-p207 in 2015 on this plan. The location of these perk test holes is marked on the site and septic system plans. The 2015 perk tests are located in the area used for the non-residential system and achieved a stabilized rate of 41 minutes per inch. This rate allows the use of the application rate of .6 gallons per square foot of infiltrative area. At this application rate and volume of wastewater two leach fields each with 10,000 square feet of infiltrative area are required (6,000 gallons per day/.6 gallons per square foot of infiltrative surface = 10,000 square feet of infiltrative area). This plan provides two leach fields each with more than 10,000 square feet of infiltrative area. According to the manual when drip tubing is placed 2 feet apart, and the tubing has an emitter placed every two feet of tubing length, each emitter is equivalent to 4 square feet of infiltrative area and therefore each of the leach fields needs to have at least 2,500 emitters (10,000 square feet / 4 square feet per emitter = 2500 emitters) as shown.

Since a drip system is used for effluent dispersal, treatment in NSF 40 approved units is required before the effluent is sent to the leach fields (manual). For these non-residential structures I have specified 4 Multi-flo FTB 1.5 units (each treats 1,500 gallons a day, specifications page 2) to treat the up to 6000 gallons a day flow they will receive.

The Caretaker residence will be a three bedroom residence for which the County requires a wastewater flow of 450 gallons per day to be used for septic system design. The perk test holes used for this system are shown on the plan as P101- P106, and the perk rate achieved was 46 minutes per inch. This excludes the failing rate of P102 and the area around P102 is therefore not used for leach trenches. The corresponding application rate for this perk test result is .4 gallons per day per square foot of infiltrative area. Two leach fields each with 1,125 square feet of infiltrative area are required for this system (450 gpd/ .4gpd/sqft = 1125 square feet of infiltrative area).

Since I used a 1 foot separation between tubes and between emitters for this drip system each emitter is equivalent to 1 square foot of infiltrative area and enough tubing must be installed to provide two separate leach areas each with 1,125 emitters as shown. The septic tank and pump chamber are both required to have a volume of 1500 gallons as shown here and on page 4 of this plan. The treatment system is a Multi-flo FTB .075 unit (see specifications on page 2), large enough to serve up to 750 gallons a day.

LEGEND

1. Cemetery
2. Mosque of The Cordoba Center
3. Community Building
4. Community Plaza
5. Fountain of the Community
6. Fountain of Memory
7. Landscape Berm
8. Utility/ service entry
9. Drop Off Area
10. Maintenance Building
11. Proposed Public Sidewalk
12. Site Accessible Path
13. Public Vehicular Access
14. Biofiltration Swale
15. Service Driveway
16. Cemetery Driveway/ Fireroad
17. Hearse/ Firetruck Turnaround
18. Path to Atherton Pond (existing)
19. Hiking Trail
20. Orchard
21. Solid Waste Service Area
22. Wastewater Treatment Area
23. Basketball Court
24. Volleyball Court
25. Playground
26. Stormwater Ret. Chamber
27. Biofiltration & Retention Swale
28. Parking Lot 'A'
29. Parking Lot 'B'
30. Caretaker Residence
31. Wastewater Processing System
32. Water Storage Tanks
33. Ramada
34. Girl's Tent Camp
35. Girl's Bathhouse
36. Boy's Tent Camp
37. Boy's Bathhouse
38. Fire Hydrant
39. HVAC Vault
40. Bicycle Racks
41. (E) abandoned/ (N) irrig well

REGULATING LINES

- (A) Property line
- (B) Setback line
- (C) Riparian Setback line
- (D) Line of the Ordinary
- (E) Line of Nature
- (F) Line of the Qiblah

site plan by Daniel Mathew Silvernail, Architect

MATERIALS KEY

- CONCRETE
- AGGREGATE BASE (AB) SURFACING
- ASPHALTIC CONCRETE
- OPEN-GRADED (PERMEABLE) ASPHALTIC CC
- TURF BLOCK

REVISIONS

1	4-15-2016	
	COUNTY COMMENTS	SRH

REGISTERED ENVIRONMENTAL HEALTH SPECIALIST — STEVEN R. HARTSELL — Exp. 12.31.2017 — # 5979 — STATE OF CALIF.

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SITE PLAN
SEPTIC
SYSTEM

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APN 779-06-002

November 30, 2015

SCALE AS NOTED

BY SRH

PAGE

SEPTIC 1