

Attachment 1: Alternative Compliance for Rancho Cañada de Pala Preserve Stockponds

WATER RIGHT INFORMATION

Owner Name:	Santa Clara Valley Water District	
Water Right License No.:	013149	
Application No.:	A028582	
Priority Date:	October 15, 1985	
Water Rights Amount:	13.8 AF	11/1 to 4/30

SECTION E. AREA COVERED BY THE ALTERNATIVE COMPLIANCE PLAN

1. The Rancho Cañada de Pala Preserve (Preserve) consists of over 1700 acres of land and is located northeast of Alum Rock Park and Cherry Flat Reservoir in San Jose, California. In December 2015, the Preserve was purchased by the Santa Clara Valley Water District (SCVWD) in part for providing mitigation in perpetuity for impacts associated with SCVWD's routine stream maintenance activities. The Preserve occurs within US Fish and Wildlife Service (USFWS) designated critical habitat for state and federally threatened California tiger salamander (CTS; *Ambystoma californiense*). The western portion of the Preserve is also USFWS designated critical habitat for the federally threatened and state species of special concern California red-legged frog (CRLF; *Rana draytonii*). Other special status wildlife species known to use the Preserve include federal candidate for listing and state species of special concern foothill yellow-legged frog (*Rana boylei*), as well as western pond turtle (*Emys marmorata*) and American badger (*Taxidea taxus*), both of which are also state species of special concern. Livestock grazing is used as a habitat management tool on the Preserve. The presence of a limited number of cattle helps maintain and may improve the conservation values of the Preserve. Without livestock grazing, adverse effects such as reduced grassland species diversity and increased accumulation of thatch from non-native annual grasses may occur. Increased thatch can result in higher wildfire risk and decreased habitat value for California ground squirrels whose burrows provide upland habitat for CTS and CRLF. There are currently 10 artificial stockponds on site. Three of the stockponds, ponds 5, 6 and 8, (see Figures 1-3) are covered under water rights license 013149. Stockponds 5, 6 and 8 have surface areas of 0.9, 0.5, 0.7 acres at the spillway and storage capacities of roughly 5.4 acre-feet (AF), 3.2 AF, and 4.6 AF, respectively. Recent surveying revealed that there is currently a breach in Pond 8. Therefore, the full capacity of the stockpond cannot be utilized. The surface area at the breach is 0.2 AF and the storage capacity is 0.6 AF. The District may eventually repair the breach at Pond 8 to restore full storage capacity. Two unnamed streams which are tributaries to Arroyo Honda Creek are the main inflow into the three stockponds.

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Figure 1: Rancho Cañada de Pala Preserve Stockpond # 5



Figure 2: Rancho Cañada de Pala Preserve Stockpond # 6

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Figure 3: Rancho Cañada de Pala Preserve Stockpond # 8

2. The point of diversion of Pond 5 (also referred to Reservoir No. 1 in the water rights license) is stated in the water right as "North 2,450 feet and East 250 feet from SW corner of Section 14, T6S, R2E, MDB&M, being within NW $\frac{1}{4}$ of SW $\frac{1}{4}$ of said Section 14." (see Figure 4)

The point of diversion of Pond 6 (also referred to Reservoir No. 2 in the water rights license) is stated in the water right as "North 2,100 feet and East 400 feet from SW corner of Section 14, T6S, R2E, MDB&M, being within NW $\frac{1}{4}$ of SW $\frac{1}{4}$ of said Section 14." (see Figure 4)

The point of diversion of Pond 8 (also referred to Reservoir No. 4 in the water rights license) is stated in the water right as "North 550 feet and East 750 feet from SW corner of Section 14, T6S, R2E, MDB&M, being within SW $\frac{1}{4}$ of SW $\frac{1}{4}$ of said Section 14." (see Figure 4)

3. The present purpose of use is listed as stockwatering, recreational and fire protection uses. The stockponds are also documented breeding habitat for CTS. Western pond turtles are also known to use ponds on the Preserve.
4. The place of use is currently listed as "at Reservoir No. 1 within SW $\frac{1}{4}$ of NW $\frac{1}{4}$ and NW $\frac{1}{4}$ of SW $\frac{1}{4}$ of Section 14, Reservoir No. 2 within NW $\frac{1}{4}$ of SW $\frac{1}{4}$ of Section 14, and Reservoir No. 4 within SW $\frac{1}{4}$ of SW $\frac{1}{4}$ of Section 14, all within T6S, R2E, MDB&M..."

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Pond 5 (also Reservoir No. 1) is located on APNs 04207028 and 04207021. Pond 6 (also Reservoir No. 2) is located on APN 04207020. Pond 8 (also Reservoir No. 4) is located on APN 04207020. These parcels are owned by Santa Clara Valley Water District.

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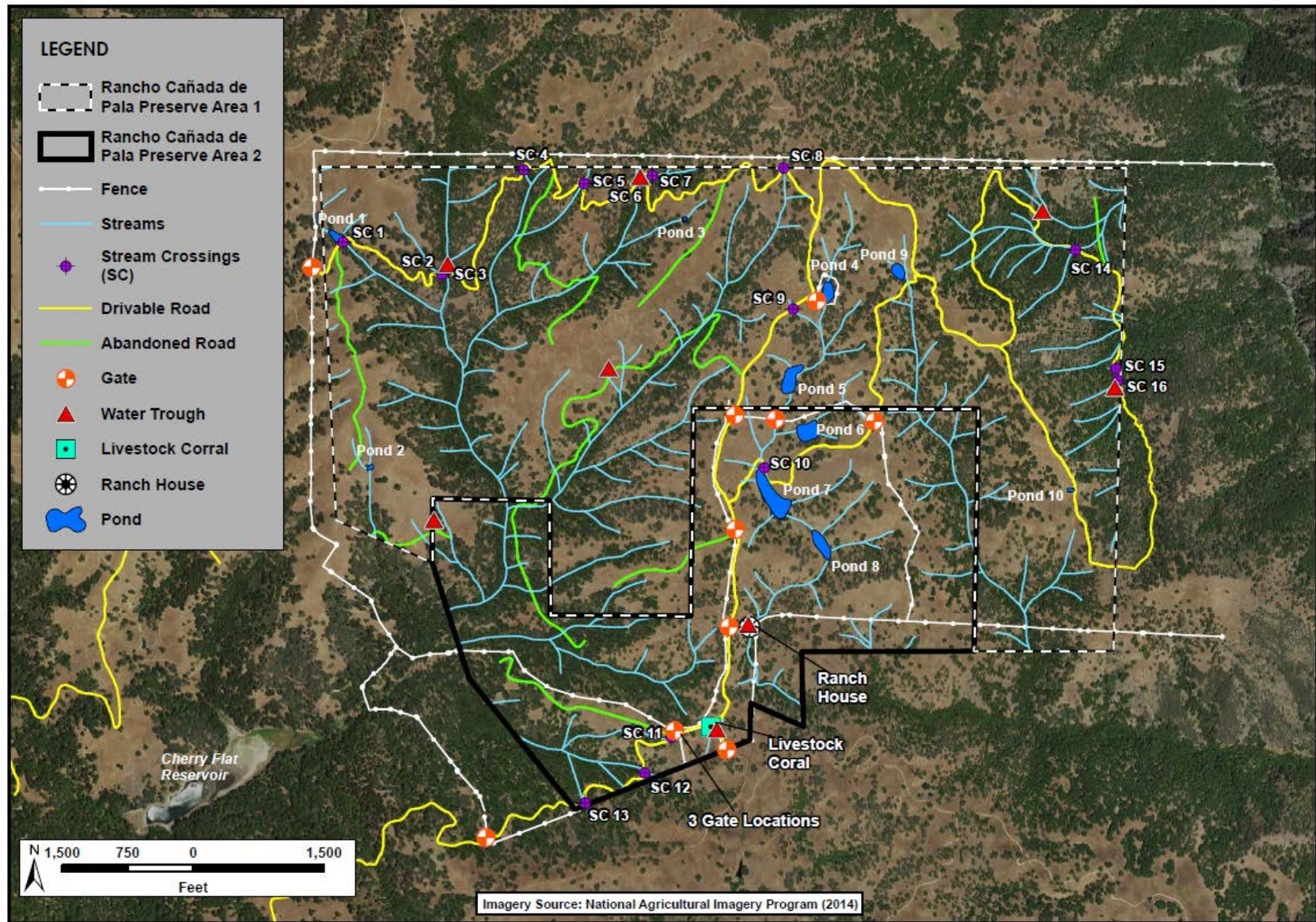


Figure 4: Map of Rancho Cañada de Pala Preserve Stockponds

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SECTION D. REQUEST FOR ALTERNATIVE COMPLIANCE

1. (b) The three stockponds licensed under water rights license 13149 are situated on a preserve that serves as USFWS designated critical habitat for state and federally threatened CTS. CTS have been documented breeding in the Preserve's stockponds. The state species of special concern, Western pond turtle is also known to utilize the ponds on the Preserve. Installation, maintenance, and monitoring of measurement devices would cause unnecessary disturbance of CTS and their habitat. Installation of the measurement device would require bringing trucks and equipment on site, reference point posts being driven into the ground, as well as space needed for electrical panel/box that would impact the land. Monitoring and maintaining any installed measurement devices would require foot access to maintain the posts and pipes. At a minimum, bi-monthly visits by truck needing road access would be typical when dry or monthly when roads are wet. CTS adults move from their upland habitat to breeding habitat in the rainy season. Therefore, driving on these roads during or after rain events increases the potential for direct takes of CTS. CTS lay their eggs in the breeding ponds and once the eggs hatch and the larva metamorph, the young return to the upland habitat. Once again, unnecessary vehicular traffic in CTS habitat has the potential for direct take of individuals. In addition, driving on dirt ranch roads when they are wet results in tread damage and prompts the need for added road maintenance. SCVWD's agency-approved Long-term Management Plan for the Preserve requires that rainy season vehicle access be kept to a minimum. Access to the site during rainy conditions is also difficult and dangerous for District staff. As such, the District requests alternative compliance from the required accuracy, certification of accuracy, installation and maintenance of a measurement device, and monthly monitoring frequency.

2. (b) The three stockponds licensed under water rights license 13149 are situated on a preserve that serves as USFWS designated critical habitat for state and federally threatened CTS. CTS have been documented breeding in the Preserve's stockponds. The state species of special concern, Western pond turtle is also known to utilize the ponds on the Preserve. Installation, maintenance, and monitoring of measurement devices would cause unnecessary disturbance of CTS and their habitat. Installation of the measurement device would require bringing trucks and equipment on site, reference point posts being driven into the ground, as well as space needed for electrical panel/box that would impact the land. Monitoring and maintaining any installed measurement devices would require foot access to maintain the posts and pipes. At a minimum, bi-monthly visits by truck needing road access would be typical when dry or monthly when roads are wet. CTS adults move from their upland habitat to breeding habitat in the rainy season. Therefore, driving on these roads during or after rain events increases the potential for direct takes of CTS. CTS lay their eggs in the breeding ponds and once the eggs hatch and the larva metamorph, the young return to the upland habitat. Once again, unnecessary vehicular traffic in CTS habitat has the potential for direct take of individuals. In addition, driving on dirt ranch roads when they are wet results in tread damage and prompts the need for added road maintenance. SCVWD's agency-approved Long-term Management Plan for the Preserve requires that rainy season vehicle access be kept to a minimum. Access to the site during rainy conditions is also difficult and dangerous for District staff. Therefore, strict compliance with several SB 88 measurement and monitoring requirements at the stockponds is

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considered infeasible and would unreasonably affect the public trust resources (i.e., California tiger salamanders). An alternative approach, as described in 4, below is being requested.

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4. ALTERNATIVE COMPLIANCE PLAN

The Santa Clara Valley Water District requests an alternative approach to SB 88 measurement and monitoring requirements to minimize the impact on the land at Rancho Canada de Pala, where California tiger salamanders reside. It proposes that the inflow into the stockponds be determined by using a common engineering computation, referred to as the Rational Method Equation¹:

$$Q=ciA$$

¹ <http://www.brighthubengineering.com/hydraulics-civil-engineering/60842-the-rational-method-for-calculation-of-peak-storm-water-runoff-rate/>

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where:

Q = Peak discharge, AF

c = Rational method runoff coefficient

i = Rainfall intensity, feet/month

A = Drainage area, acre

The rational method runoff coefficient, c, is derived from a table developed by the California Department of Transportation (see Table 1 below). The model requires characterization of the watershed's relief, soil saturation, vegetal cover, and surface storage. The relief of watershed area of the stockponds is considered 'high', hilly, with average slopes of 10 to 30%. A 0.22 coefficient is assigned for that parameter. The watershed is estimated to have 'normal' soil saturation, or well drained, high or medium-textured soils, sandy loams, silt and silty loams. A 0.06 coefficient is assigned for that parameter. The vegetal cover is considered 'low', or good to excellent; about 90% of drainage area in good grassland, woodland or equivalent cover. A 0.04 coefficient is assigned for that parameter. The watershed area has 'normal' surface storage, with considerable surface depression storage, lakes and pond marshes. A 0.08 coefficient is assigned for that parameter. The overall runoff coefficient is determined by summing the four watershed parameters described above and is determined to be 0.40.

Monthly rainfall, i, is determined from a nearby rain gage located on Blue Oak Ranch Reserve (BORR). Data is available on the following website: <http://www.blueoakranchreserve.org/explore/current-weather.html>. The website provides inches of rain. Those units are converted to feet.

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Runoff Coefficient Model									
http://www.waterboards.ca.gov/waterrights/water_issues/programs/water_availability/docs/									
	Watershed Types								
	Extreme	High	Normal	Low					
Relief	0.28 – 0.35	0.20 – 0.28	0.14 – 0.20	0.08 – 0.14					0.22
	Steep, rugged terrain with average slopes above 30%	Hilly, with average slopes of 10 to 30%	Rolling with average slope of 5 to 10%	Relatively flat land, with average slope of 0 to 5%					
Soil Saturation	0.12 – 0.16	0.08 – 0.12	0.06 – 0.08	0.04 – 0.06					0.06
	No effective soil cover; either rock or thin soil mantle of negligible infiltration capacity	Slow to take up water; clay or loam soil of low infiltration capacity; imperfectly or poorly drained	Normal; well-drained, high or medium-textured soils, sandy loams, silt and silty loams.	High; deep sand or other soil that takes up water readily, very high level drained soils.					
Vegetal Cover	0.12 – 0.16	0.08 – 0.12	0.06 – 0.08	0.04 – 0.06					0.04
	No effective plant cover, bare, or very sparse cover	Poor to fair; clean cultivation crops, or poor natural cover, less than 20% of drainage area over good cover	Fair to good; about 50% of area in good grassland or woodland, not more than 50% of area in cultivated crops	Good to excellent; about 90% of drainage area in good grassland, woodland or equivalent cover					
Surface Storage	0.10 – 0.12	0.08 – 0.10	0.06 – 0.08	0.04 – 0.06					0.08
	Negligible surface depression few and shallow; drainage ways steep and small, no marshes	Low; very well defined system of drainage ways; no ponds or marshes	Normal; considerable surface depression storage, lakes and pond marshes	High; surface storage high; drainage system not sharply defined, large floodplain storage or large number of pond marshes					
<p><u>Example 1:</u> The watershed above project site consisting of:</p> <p><u>Solutions:</u></p> <p>1) Hilly terrain with average slope of 15%, Relief = 0.25</p> <p>2) Well-drained gravelly loams, Soil infiltration = 0.11</p> <p>3) Planted with grapes, and Vegetal Cover = 0.07</p> <p>4) Low, well-defined Surface storage = 0.09</p> <p>Find the runoff coefficient, C, for the above watershed.</p> <p>-----</p> <p>C = 0.52</p>									
									0.40

Table 1: California Department of Transportation Runoff Coefficient Model

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The drainage area, A, was determined by using GIS and contour maps. The watershed areas for the three ponds covered under this water rights are summarized in Table 2, below:

Pond No.	Watershed Area (Acres)
5	56.59
6	15.02
8	142.6

Table 2: Summary of Pond Watershed Area

To determine the monthly runoff into a stockpond, the monthly rain depth (in feet) is multiplied times the watershed area (in acres) draining into each pond and then multiplied times the runoff coefficient. The monthly runoff is summed over a 12-month period to determine the annual runoff. The runoff is capped by the capacity of the pond.

As an example, the BORR weather station recorded 8.17 inches in a given month. This is equivalent to 0.68 feet and represents i . As shown in Table 2, above, the watershed area, A, into Pond 5, is 56.59 acres. The coefficient, c , is 0.40. The resulting amount of runoff that could go to storage is determined by using the Rational Method equation, $Q = ciA$.

$$Q = 0.40 * 0.68 \text{ ft} * 56.59 \text{ acres}$$

$$Q = 15.4 \text{ acre-feet (AF)}$$

A portion of this runoff was captured in an upstream stockpond (Pond 4) which has a capacity of 2.5 AF. Therefore, the available runoff for Pond 5 is $15.4 \text{ AF} - 2.5 \text{ AF} = 12.9 \text{ AF}$. However, since the capacity of Pond 5 is only 5.4 AF, only 5.4 AF of the runoff is captured in this pond.

This methodology assumes the ponds are empty at the start of the rainy season, ponds don't collect more water after spilling, there is no evaporation, and does not account for the consumption by cattle or leakage.

SECTION F. MEASUREMENT AND MONITORING

1. Previous owners had installed staff gages in Ponds 5 and 6. However, they are not installed at the lowest point of the pond and may not accurately measure the full range of elevation. District staff evaluated installing a new device. However, due to the impacts that installing, monitoring, and maintaining measurement devices would have on CTS and other special-status species as discussed above, staff concluded that using the Rational Method would be a suitable way to estimate how much inflow was diverted into the stockpond.
2. The existing staff gages are not installed at the lowest point of the ponds and therefore may not accurately measure the full range of elevation.
3. The proposed alternative method may be considered rudimentary but the water District took steps to ensure accuracy of several elements. Survey fieldwork was performed between August and December 2017 to verify the capacity, surface area, and crest height of the ponds. Additionally, GIS and contour maps were used to verify the watershed area. Finally, the Long-term Management Plan

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for the Preserve includes a consultant-prepared discussion of soils as well as a map of the soils types on-site that confirms the soil saturation selected to characterize the runoff coefficient.

SECTION G. IMPLEMENTATION SCHEDULE

The proposed alternative compliance can be implemented immediately.