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December 2, 2019 11244-05

Candice Bigley
Project Manager
PMB | Advancing Healthcare Real Estate
3394 Carmel Mountain Road, Suite 200
San Diego, California 92121

Subject: Results of California Red-Legged Frog Habitat Assessment for the Proposed Rodeo Gulch Storm Drain Project, Santa Cruz, California

Dear Ms. Bigley:

Please find attached results of a focused habitat assessment for the California red-legged frog conducted by Bryan Mori Biological Consulting Services for the proposed Rodeo Gulch Storm Drain. Bryan is a highly qualified and well-respected wildlife biologist in Santa Cruz County with extensive local experience with this species. For this reason, Ryan Henry, Dudek's lead biologist for this project, worked closely with Bryan on completion of this report. Similar to the other biological resource assessments conducted by Dudek for the project, the attached report evaluated three alternative alignments of a new storm water pipeline near Mattison Lane that terminates at outfalls just west of Rodeo Creek Gulch.

The habitat assessment concluded that the project site and surrounding areas provide low potential for breeding and dispersal habitat for California red-legged frogs. Although the potential for the species to occur is low, standard construction protection measures have been recommended for project implementation. These measures include a pre-construction biological survey, worker training, installation of exclusionary fencing, monitoring during initial ground disturbance, and installation of escape ramps from trenches and holes left uncovered overnight.

Additional USFWS-protocol surveys for the species are not warranted. However, per the guidance that was used for this habitat assessment, these results can be provided to the USFWS for concurrence/confirmation that protocol-level surveys are not warranted. Dudek typically recommends submitting this report to the USFWS' Ventura Office for concurrence.

Please contact me if you would like to discuss with either myself or Ryan Henry.

Sincerely,

Stephanie Strelow
Principal

Ryan Henry
Senior Biologist

Attachment

California Red-Legged Frog Habitat Assessment

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November 26, 2019

Ryan Henry
Dudek
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Oakland, CA 94612

RE: RODEO GULCH STORM DRAIN PROJECT CALIFORNIA RED-LEGGED FROG HABITAT ASSESSMENT

Dear Ryan:

The purpose of this letter-report is to present the current understanding of known and potential habitat of California red-legged frog (CRLF) (*Rana draytoni*) in the project vicinity. This assessment does not include focused aquatic surveys for CRLF.

METHODS

The habitat assessment was performed using the following protocol as a guide: US Fish and Wildlife Service (USFWS), Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog, August 2005 (USFWS 2005). The assessment includes general upland and aquatic habitat descriptions adjacent to the storm drain alignment options and surrounding landscape, and relevant species observations.

The descriptions of existing site conditions and the surrounding landscape are based on a reconnaissance-level survey of three storm drain alignment options performed on November 13, 2019. The alignment options and adjacent habitats were walked to the extent practical. The principal habitats were identified and recorded in a field notebook and photographed. Access to areas surrounding the project site was limited, in many cases, due to private property restrictions. Therefore, a review of Google Earth was performed to document existing conditions of the area surrounding the project site. The California Natural Diversity Data base (CNDDB) and local studies were reviewed, and consultations with local biologists conducted to document relevant observations of CRLF in the study area.

EXISTING CONDITIONS

Project Site

The project site includes Options 1 – 3 (Figure 1), all of which discharge into Rodeo Gulch. The preferred alternative is Option 3. The general habitat descriptions, below, are of uplands, as no aquatic habitats are present along the alternatives.

Option 1. This alternative runs diagonally NW to SE and begins at Soquel Avenue and proceeds downslope onto the floodplain of Rodeo Gulch. The first third of the storm drain passes through annual grassland/ruderal habitat with a fringe of blackberry (Figure 2). The middle third lies beneath live oak woodland, with a managed understory, giving the woodland a parkland appearance (Figure 3). The final section of the storm drain progresses into riparian habitat characterized by an overstory of willows and dense understory of blackberries and English ivy (Figure 4).

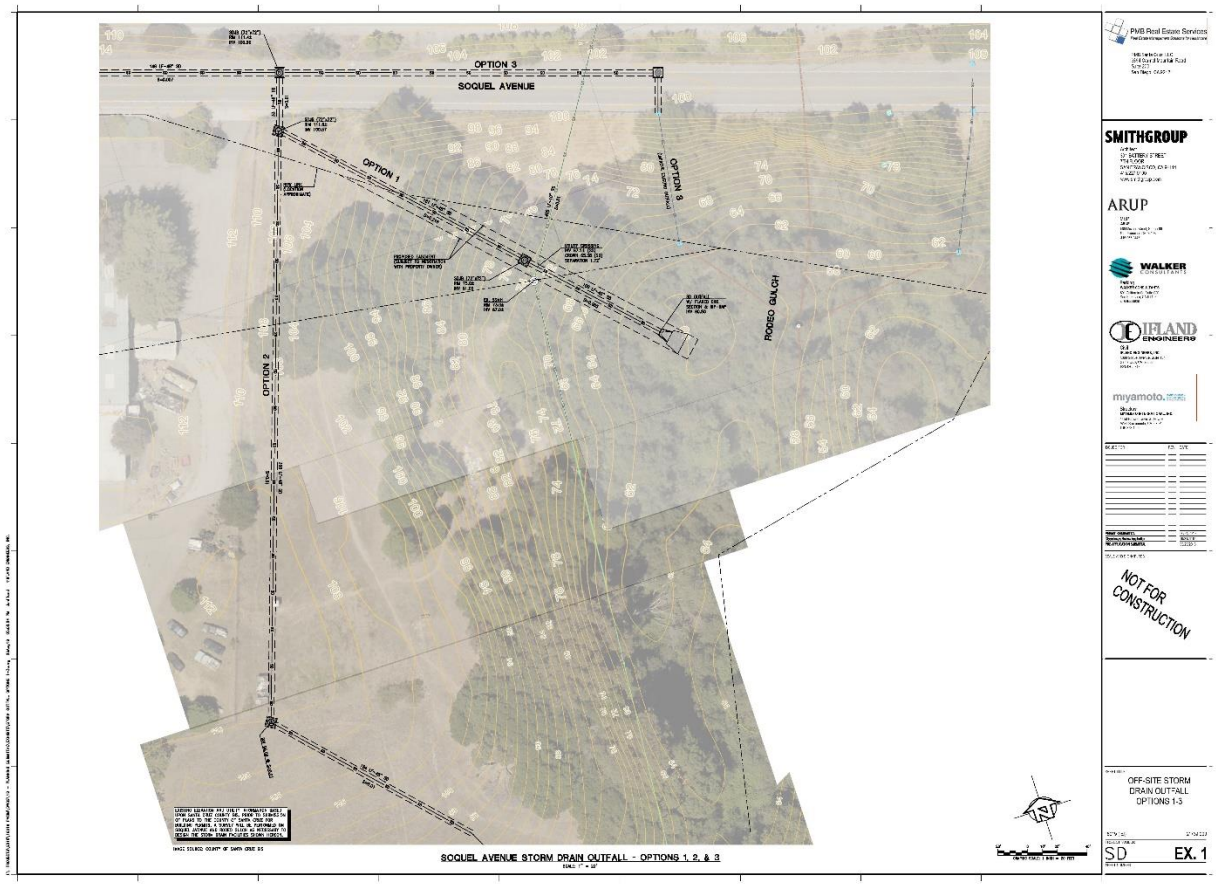

Figure 1. Project site map showing storm drain options 1-3.

Figure 2. Option 1 begins in annual grassland/ruderal habitat and proceeds downslope towards oak woodland.

Figure 3. The middle third of the Option 1 alignment passes through a park-like live oak woodlands with a managed understory.

Figure 4. The outfall of Option 1 is located in willow riparian habitat.

Option 2. Option 2 begins at the same NW corner as Option 1 and proceeds southward for much of its length, before angling SE towards Rodeo Gulch. Except for passing beneath a large live oak, the entirety of this alternative lies within annual grassland/ruderal habitat, characterized by plantain, grasses, morning glory and colonizing blackberries (Figures 5 and 6). The habitat appears to be managed through mowing. A storage bin of construction waste and a portable out-house are present on the lot. The outfall design was assumed to incorporate a similar footprint and function as the one associated with Option 1 (see Figure 1).

Figure 5. Option 2 begins at the NW corner of the lot in annual grassland/ruderal habitat and proceeds southward.

Figure 6. As Option 2 angles towards Rodeo Gulch, the terrace gently slopes towards oak woodland in the background. The habitat is managed through mowing, as evidenced by a layer of cut thatch.

Option 3 (Preferred Alternative). Option 3 is the shortest alternative and would require the least amount of habitat disturbance. This alternative begins at Soquel Avenue and runs perpendicular to the road and down the steep embankment towards Rodeo Gulch. The habitat consists of a sparse willow and live oak overstory, while the understory transitions from open at the top of the embankment to moderate at the outfall and consists of blackberries, English ivy, poison oak and grasses. The entire alignment is located on the road embankment and avoids the drainage bottom (Figures 7 - 9).

Figure 7. Looking along Soquel Avenue towards the origin of Option 3. View is from the NW corner of the lot.

Figure 8. The point from which Option 3 runs down the road embankment. Note the live oak and willows.

Figure 9. Looking up the road embankment from the approximate outfall location of Option 3. The lower slope is covered mostly by blackberries. Willow limbs are in the foreground.

Surrounding Habitats within 1 Mile of the Project Site

For the purposes of this assessment, the discussion of aquatic and upland habitats, below, encompasses the landscape within 1 mile of the project site, per protocol guidelines.

Aquatic Habitats. A small pool was present at the downstream end of the Soquel Avenue culvert (Figure 10). The pool appeared to be under one foot in depth and was dark and slightly

turbid. No aquatic invertebrates or fishes were seen. Aquatic vegetation was absent and cover was lacking along the wing walls. This pool extended into the culvert, but was absent at the upstream end, beyond SR 1 (Figure 11). The reminder of Rodeo Gulch, approximately 300 feet up- and downstream of Soquel Avenue, was largely dry, during the November 13th survey. The substrate was sandy and lacked depressions of possible significant pools. Given the sandy substrate, surface water in the drainage may be highly seasonal. The riparian habitat along Rodeo Gulch adjacent to the project site is dense and complex, with a continuous overstory of willows. This habitat, however, is impacted by homeless encampments both up- and downstream of the project site.

Other aquatic habitats within 1 mile of the project site include a section of lower Soquel Creek, a small segment of Arana Gulch and drainages which flow into Schwann Lagoon. Soquel Creek is perennial, while the others are intermittent. These drainages are surrounded by urban developments and are isolated from Rodeo Gulch (Figure 12).

Figure 10. Small, murky pool observed at the downstream end of the Soquel Avenue culvert.

Figure 11. The upstream end of the Soquel Avenue/SR 1 culvert was completely dry

Uplands. The upland landscape surrounding the project site is dominated by urban developments, including industrial/commercial, high density residential, schools and infrastructure (e.g., major roads and highways). Fragmented open spaces consisting of annual grasslands are present at the northern perimeter of the 1 mile radius (Figure 12). However, urbanization isolates Rodeo Gulch from these open space areas, except through Rodeo Gulch.

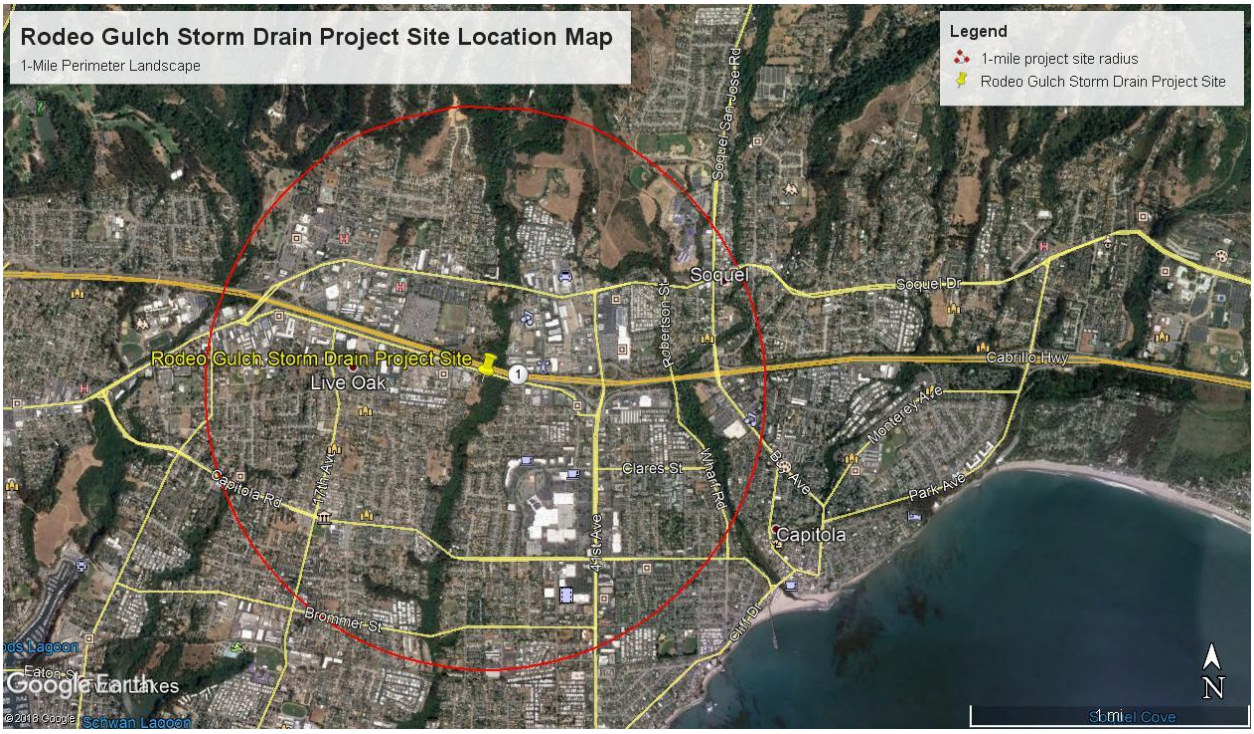

Figure 12. Aquatic and upland habitats within 1 mile of the Rodeo Gulch Storm Drain Project.

CALIFORNIA RED-LEGGED FROG STATUS AND NATURAL HISTORY

The California red-legged frog is a federal threatened species and a Priority 1 state species of special concern (CDFW 2017; Thomson *et al.* 2016; USFWS 2002). Historically, the statewide range of this species extended southward from the Marin County coast, and inland from Shasta County, south to Baja California (Jennings and Hayes 1994). However, CRF has been extirpated from 70% of its former range (USFWS 1996), and presently is found primarily in central coastal California, typically in natural and artificial ponds, quiet pools along streams, and coastal marshes (USFWS 1996). During the breeding season, optimal aquatic habitat is characterized by dense emergent or shoreline vegetation and a water depth of 2 feet or more (Hayes and Jennings 1988). However, seasonal ponds located in grasslands with little emergent/shoreline cover may also be used for breeding, where water levels permit the metamorphosis of larvae and rodent burrows offer cover (Thomson *et al.* 2016; USFWS 2002; pers. obs.). Breeding typically occurs between December and April, depending on annual environmental conditions and locality. Egg masses containing 2,000 - 5,000 eggs are usually deposited near the water surface on emergent vegetation, but occasionally on the pond bottom where attachment sites are absent. Eggs require 6 - 14 days to hatch, and metamorphosis generally occurs within 3.5 - 7 months of hatching, although larvae have been recorded to over-winter at some sites (Fellers, *et al.* 2001). Following metamorphosis, generally between July and September, juveniles reach 25 - 35 mm in size and do not travel far from aquatic habitats, if appropriate cover is present. Adult migrations and juvenile dispersal generally begin with the first rains of the weather-year, although all size classes will move in response to receding water at seasonal ponds. Radio

telemetry data indicate that adults engage in straight-line movements irrespective of riparian corridors or topography, and they may move up to 1.7 miles between non-breeding and breeding sites (Bulger, *et al.* 2003; Fellers and Kleeman 2007). At permanent ponds, most CRF remain at the pond but often move up to 300 feet into surrounding uplands, especially following rains, when individuals may spend days or weeks in upland habitats (Bulger, *et al.* 2003). At seasonal breeding sites, frogs will move at least as far as the nearest suitable non-breeding habitat, e.g., riparian zone, marsh, etc. (Fellers and Kleeman 2007). CRF may take refuge in small mammal burrows, leaf litter, or other moist areas during periods of inactivity or when necessary to avoid desiccation (Rathbun, *et al.* 1993; Jennings and Hayes 1994).

Much of this species' habitat has undergone significant alteration by agricultural, urban development, and water projects, leading to the extirpation of many populations (USFWS 1996). Other factors contributing to the decline of red-legged frogs include their historical exploitation as food; competition and predation by bullfrogs (*Rana catesbeiana*); introduction of predatory fishes (Jennings and Hayes 1985; Hayes and Jennings 1988; Lawler, *et al.* 1999); and increased salinity of coastal breeding sites (Jennings and Hayes 1990). Chytrid fungus, while linked to the decline of some amphibian species, does not appear to have significantly impacted CRF (Thomson *et al.* 2016).

Local Records

Based on review of the NDDB, no CRLF records are known from within the protocol recommended one-mile search radius. In fact, the four nearest CRLF records are located approximately 7.7 – 8.3 miles from the project site. All of these records are from the upper San Lorenzo and Soquel Creek watersheds and likely represent frogs that are associated with artificial and sag ponds along the San Andreas Fault, which runs parallel to the western edge of the Santa Cruz Mountains ridgeline. These records are depicted on Figure 13 and summarized on Table 1.

For purposes of evaluating federal projects or projects with a federal nexus (e.g., federal funding), the storm drain project is not included in CRLF Critical Habitat for Santa Cruz County (Figure 14).

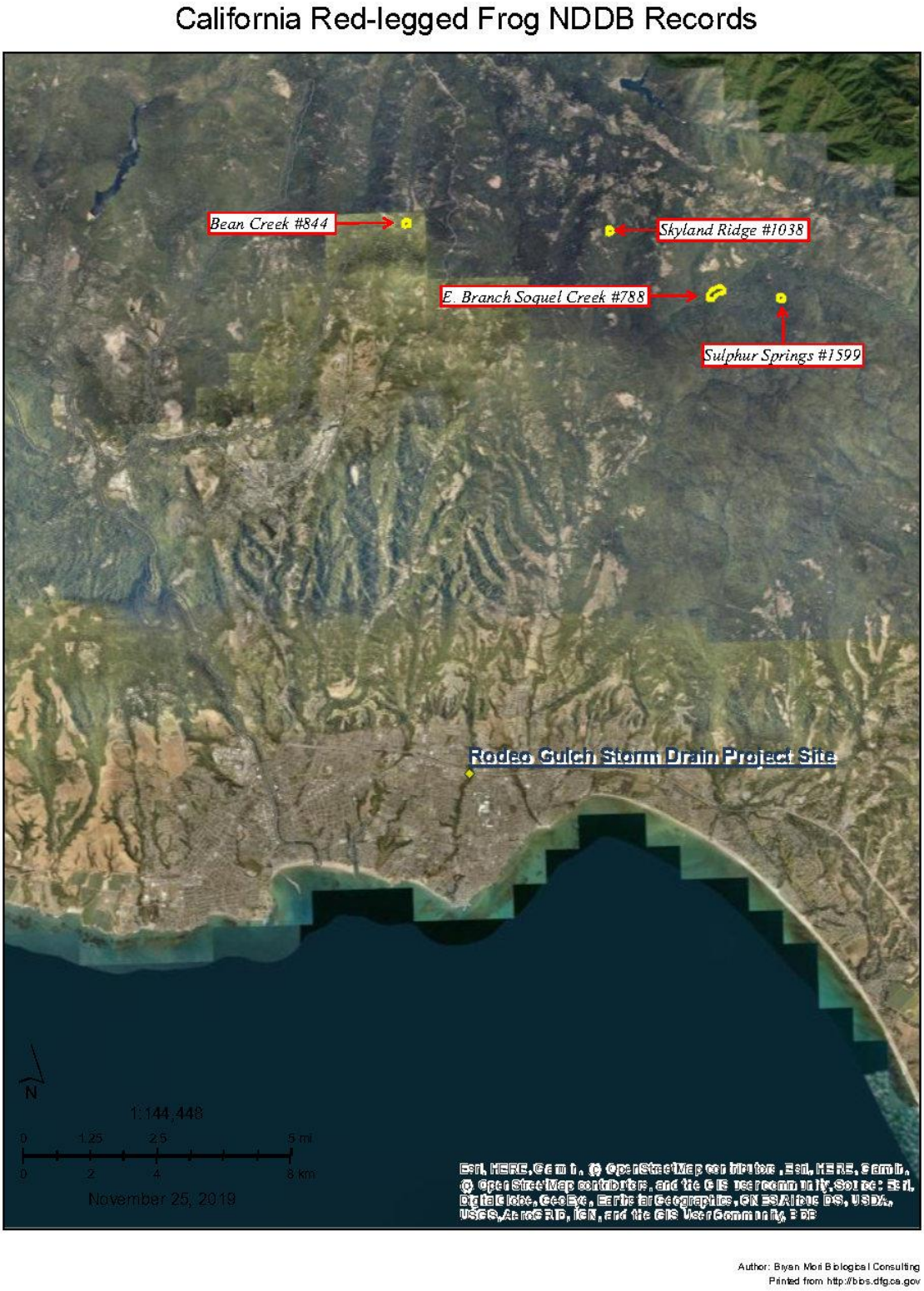

Figure 13. Regional records of CRLF. Note the nearest observations are from 7 – 8 miles from the project site.

Table 1. Nearest regional CRLF records to the Rodeo Gulch Storm Drain Project Site.

NDDB OCCURRENCE NO.	APPROXIMATE DISTANCE FROM PROJECT (Miles)	COMMENTS
788	7.7	One large (110 mm SVL) adult female observed on 29 Sep 2004, during steelhead surveys (pers. obs.). The site location was a root wad, sour pool on E. Branch Soquel Creek, just upstream from Fern Gulch.
844	7.9	One young-of-the-year sized juvenile observed on the bank of Bean Creek, 2 Sep 2005.
1599	8.2	One adult observed basking at Sulphur Springs, Soquel State Demonstration Forest, on 21 July 2017.
1038	8.3	Six adults observed in a 10' diameter man-made pond in second growth redwood forest on Skyland Ridge. October 30, 2008.

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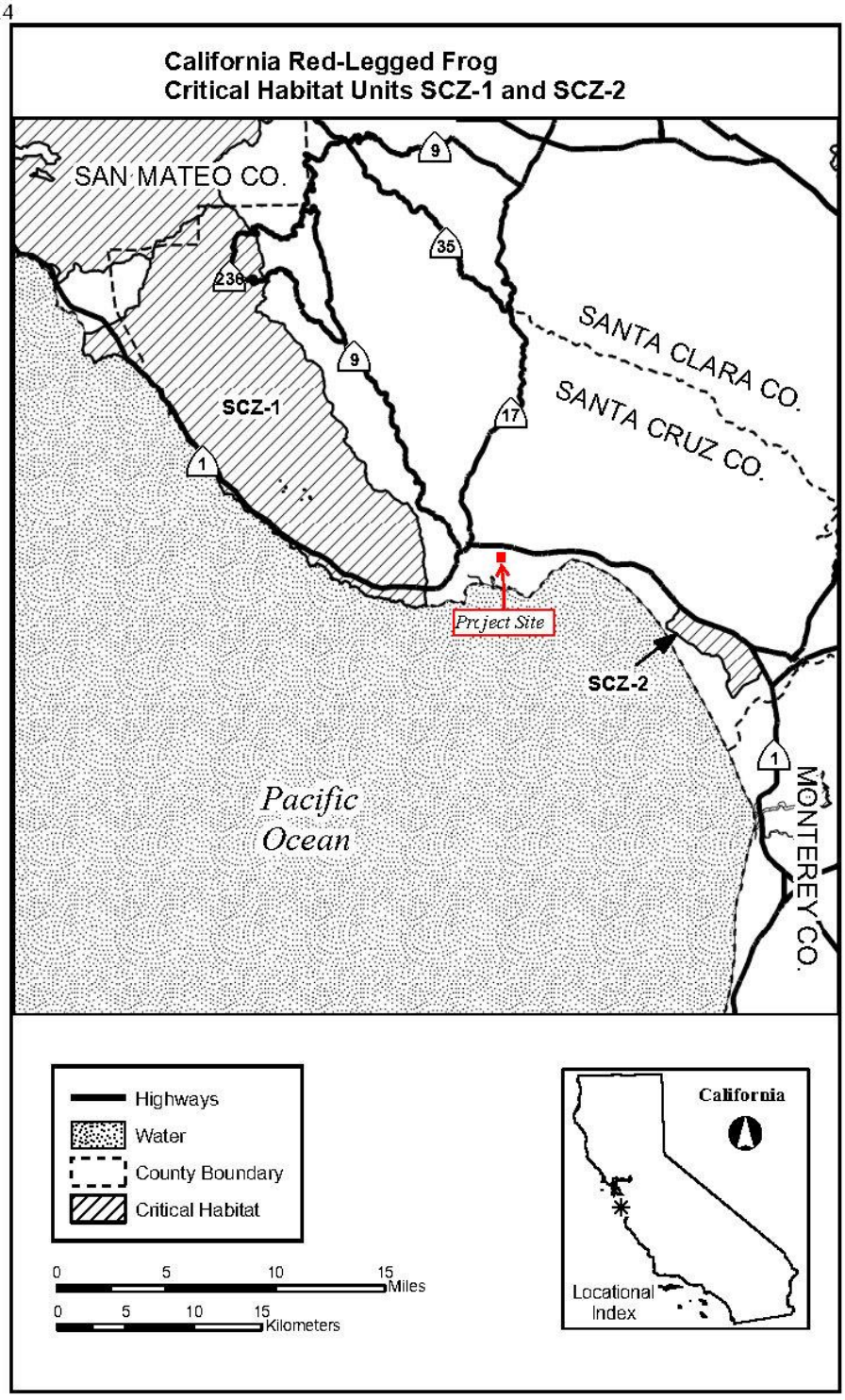

Figure 14. CRLF critical habitat map for Santa Cruz County, CA.

DISCUSSION

Habitat Suitability

Taken together, the project site and surrounding habitat conditions (i.e., largely industrial/commercial and high density residential), the paucity of CRLF records from the region, and the lack of aquatic habitat in the project vicinity suggest that CRLF is likely absent from the project area (i.e., along or adjacent to Options 1 – 3), and may be absent from Rodeo Gulch, in general, or present in only small numbers. Although a pool is present at the downstream end of the culvert beneath Soquel Avenue, and is in the vicinity of Options 1 and 3, the pool lacks cover and vegetation for egg deposition, is located in the main channel, where winter flows could dislodge egg masses, and is located in a highly urbanized environment. Given these circumstances, the pool seems marginal as breeding habitat, at best. Also, when considering the absence of off-channel ponds and wetlands, habitats typically considered suitable CRLF breeding sites, within the 1-mile radius of the project site, it seems unlikely the project area provides dispersal habitat for juveniles or non-breeding habitat for adults, with no potential source populations nearby. It should be noted, however, that this assessment was conducted in the fall, precluding a more accurate evaluation of hydrological conditions of Rodeo Gulch within the study area, and no focused surveys were conducted as part of this assessment.

Focused CRLF Survey

Further focused surveys for CRLF do not seem warranted at this time due to the low likelihood of CRLF occurrence in the project area or in the surrounding landscape. Additionally, since lower Rodeo Gulch is occupied by homeless encampments, both up-and downstream of the project site, nighttime surveys may be unsafe unless biologists are escorted by security personnel. Given these circumstances, standard mitigation measures implemented during construction are all that is necessary for the storm drain project.

Potential Impacts and Recommendations

The chances that the proposed project, regardless of option, could result in CRLF take appears very low, for the reasons discussed, above. At a minimum, the following customary construction protection measures should be considered for the project, since take is not authorized and the presence of CRLF in the work area would result in agency consultations and project delays.

- Pre-construction surveys by an approved qualified biologist, generally within 48 hours, prior to project start.
- Workers environmental training.
- Installation of orange construction fencing to delineate environmentally sensitive habitats within and adjacent to the project site.

- Monitoring initial vegetation removal and ground disturbance (e.g., rough grading and trenching) daily by a qualified biologist.
- Daily inspection of the work area by the construction monitor, prior to the start of the day's work to check for frogs under vehicles, in trenches, etc.
- The contractor should create escape ramps for trenches and holes left uncovered overnight.

Please call me if you have any comments or questions regarding this report.

Sincerely,

Bryan Mori
Consulting Wildlife Biologist

REFERENCES\PERSONS CONTACTED

Biotic Resources Group. 2015. DeLaveaga Park Stroke Center Recreational Facility Use City of Santa Cruz Biotic Report. Prepared for the City of Santa Cruz Parks and Recreational Department.

Bryan Mori Biological Consulting. 2008. Soquel Creek at Soquel Village – Special-Status Species Preliminary Site Assessment. Prepared for John Gilchrist and Associates, Santa Cruz, CA.

_____. 2007. Arana Gulch Blue Trail Dam California Red-legged Frog Assessment. Prepared for Balance Hydrologics, Inc., Berkeley, CA.

_____. 2004. Draft Maggiolo Property Biological Assessment, Santa Cruz, CA. Prepared for Patrick Powers Designs, Santa Cruz, CA, in collaboration with Biotic Resources Group.

_____. 2003. Delaveaga Golf Course Master Plan Wildlife Assessment. Prepared for Stephanie Strelow, Strelow Consulting, Santa Cruz, CA.

_____. 2000. California red-legged Frog Pre-construction Survey. Letter report prepared for Delaveaga Golf Course and Lodge.

Bulger, J. B., N. J. Scott Jr., and R. B. Seymour. 2003. Terrestrial Activity and Conservation of Adult California Red-legged Frogs (*Rana aurora draytonii)* in Coastal Forests and Grasslands. Biological Conservation 110: 85-95.

California Natural Diversity Data Base. 2019. Soquel and Laurel Quadrangles.

Fellers, G. M. and P. M. Kleeman. 2007. California red-legged frog (*Rana aurora draytonii*) Movement and Habitat Use: Implications for Conservation. Journal of Herpetology Vol. 41(2), 276-286.

Fellers, G. M., A. E. Launer, G. Rathbun, S. Bobzien, J. Alvarez, D. Sterner, R. Seymour, and M. Westphal. 2001. Over-wintering tadpoles in the California red-legged frog (*Rana aurora draytonii*). Herpetological Review 32(3), 156-157.

Hayes, M. P. and M. R. Jennings. 1988. Habitat Correlates of the Distribution of the California Red-legged Frog (*Rana aurora draytonii*) and the Yellow-legged Frog (*Rana boylii*): Implications for Management. In R. Szaro, K. E. Severson and D. R. Patton (tech. coordinators), Proceedings of the Symposium of the Management of Amphibians, Reptiles and Small Mammals in North America. USDA Forest Service, General Tech. Rpt. RM-166.

Jennings, M. R. and M. P. Hayes. 1994. Amphibian and Reptile Species of Concern in California. California Department of Fish and Game. Sacramento, CA.

_____. 1990. The Status of California Red-legged Frog (*Rana aurora draytonii*) in Pescadero Marsh Natural Reserve. California Department of Parks and Recreation No. 4-823-9018.

_____. 1985. Pre-1900 Over harvest of California Red-legged Frogs (*Rana aurora draytonii*): the Inducement for Bullfrog (*Rana catesbeiana*) Introduction. Herpetologica 41(1):94-103.

Lawler, S. P., D. A. Dritz and M. Holyoak. 1999. Effects of introduced mosquitofish and bullfrogs on the threatened California red-legged frog. Conservation Biology 13: 613-622.

Thomson, R. C., Wright A. N. and H. B. Shaffer. 2016. California Amphibian and Reptile Species of Special Concern. Prepared for the California Department of Fish and Wildlife. U.C. Press.

United States Fish and Wildlife Service. 2010. 50 CFR Part 70 Endangered and Threatened Wildlife and Plants: Revised Designation of Critical Habitat for California Red-legged Frog; Final Rule. Federal Register/Vol. 75, No. 51, Wednesday, March 17, 2010/Rules and Regulations.

_____. 2005. U.S. Fish and Wildlife Service Guidance on Site Assessment and Field Surveys for California Red-legged Frogs. Sacramento Field Office, Sacramento, California.

_____. 2002. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, Oregon.

_____. 1996. Federal Register/Vol. 61, No. 101, Thursday May 23, 1996/Rules and Regulations.

Personal Communications:

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