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March 6, 2009

Joddi Leipner  
Senior Engineering Environmental Planner  
Santa Barbara County Public Works  
Resource Recovery and Waste Management  
130 E. Victoria Street, Suite 100  
Santa Barbara, California 93101

**Subject: Scope of Work for Implementation of the California Red-legged Frog Management Plan for the Tajiguas Landfill Reconfiguration and Baron Ranch Restoration Project**

Dear Ms. Leipner,

As requested, of P&D Consultants, a district in AECOM (formerly known as EcoSystems Restoration Associates) (AECOM), has prepared this scope of work for the County of Santa Barbara (County), Public Works Department, Resource Recovery and Waste Management Division (RRWMD) to provide assistance with the implementation of the California Red-legged Frog (*Rana aurora draytonii*) Management Plan for the Tajiguas Landfill Reconfiguration and Baron Ranch Restoration Project. We have included cost estimates for the following requested tasks:

1. implementing the relocation and monitoring portion of the California Red-legged Frog Management Plan;
2. pre-construction monitoring;
3. construction monitoring;
4. pre-construction enhancements in Arroyo Quemado at Baron Ranch; and
5. early pre-construction surveys and monitoring (prior to August 15).

These tasks and their associated subtasks and fees are discussed in detail below; an attached spreadsheet provides further detail.

**Task 1. California Red-legged Frog Management Plan Implementation**

Implementation of the California Red-legged Frog Management Plan would commence once the County has obtained required permits from the U.S. Army Corps of Engineers (ACOE), U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG). All work would be completed under the supervision of AECOM senior herpetologist, Russ Smith, pursuant to his USFWS Recovery Permit for handling, marking, and monitoring California red-legged frogs. AECOM senior biologist Julie Niceswanger, also holds a separate USFWS recovery permit which includes handling and monitoring of California red-legged frogs. All activities would be conducted in accordance with the recommended equipment disinfection procedures from Appendix B of the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (Guidance) established by the USFWS in 2005:

## 1.1. Chytrid Treatment

Prior to moving frogs from the in-channel basins at Tajiguas to Arroyo Quemado, both sites will be sampled for Chytrid (*Batrachochytrium dendrobatidis*) fungus. This fungus has been implicated in the decline of amphibian species and attacks keratinized portions of the skin and mouthparts. If results of the Chytrid sampling indicate that this fungus is present in the Tajiguas in-channel basins and not in the population at Arroyo Quemado, treatment for the fungus would need to be conducted prior to translocating individuals between the two sites. Treatment requires ten days of soaking infected adults and tadpoles in an antifungal solution for a predetermined time each day. All animals would be held in a pre-approved quarantine area during treatment and only released into the Arroyo Quemado watershed after successful treatment.

The quarantine facility would consist of a temporary holding area with a water source for adults and larger juvenile frogs and a separate area for smaller metamorphs as these could become prey for larger individuals in a captive situation. Tadpoles would also be kept in a separate pool. Baron Ranch would be a suitable area for these temporary holding areas. The pools would need to be cleaned daily requiring adequate access to a water source. It would take a minimum of five hours each day to treat all of the animals and clean the holding areas for a total of 50 hours. An additional 15 hours of preparation and coordination time is added to this effort. It will take approximately 65 person hours to complete this task.

Equipment required for this activity includes an estimate for \$2,825 itemized as follows:

- 2 Large dog kennels - \$300
- 1 Portable aviary - \$2000
- 2 Plastic swimming/wading pools - \$100
- 1 Water trough - \$100
- Crickets - \$50
- Antifungal Agent - \$200
- 5 Dipnets - \$75

The estimated cost to complete sub-task 1.1 is \$11,350.

## 1.2. Frog Relocation from Tajiguas to Baron and PIT tagging

Suitable pools would be created or identified on Baron Ranch to receive relocated individuals of all life stages. The initial relocation of California red-legged frog adults, metamorphs, and tadpoles would be conducted by Russ Smith who holds a UFWs section 10(a)(1)(A) permit to mark this species with passive integrated transponder (PIT) tags. All captured California red-legged frogs of appropriate size would be injected with a PIT tag, measured (snout-vent length), weighed, and sexed before being released. Biologists specifically permitted to handle and relocate California red-legged frogs would also capture all stages of California red-legged frogs from the in-channel basins and transfer these animals to pre-approved areas at Baron Ranch. AECOM biologists to complete this work include Russ Smith, Julie Niceswanger, Krisitn Turner, Jason Erlich, Joelle Fournier, and Robert Conohan. All Biologists would be approved through either a recovery permit or through authorization under a USFWS biological opinion to handle California red-legged frogs.

Capturing adults, metamorphs, and tadpoles would be accomplished using floating vessels within the basins and from the banks where accessible. As the basins are drying it may be possible to access the water by laying down sheets of plywood across the muddy perimeter to access the standing water. As many tadpoles as possible will be captured and temporarily held in buckets then transferred in resealable plastic bags to the receiving pools

on Baron Ranch. Adults and metamorphs would be transferred to individual plastic storage containers with moss liners or some other moist medium, and packaged into coolers for transport to Baron Ranch.

This activity would be scheduled for approximately 4 days in June. Each survey would require approximately 12 hours (6 daylight hours and 6 night hours). Two biologists would require a total of 92 hours to complete the intensive relocation efforts. An additional 24 hours of preparation and coordination time is added to this effort to allow time to notify agencies, acquire field equipment, and sanitize all field gear.

Equipment required for this activity includes an estimate for \$1,340 itemized as follows:

- 5 Buckets with lids for tadpoles ~ \$25.00
- 20 Medium plastic storage containers for Adults and metamorphs ~ \$50.00 total
- Sponge or moss for bottom of buckets and plastic containers ~ \$25.00 total
- Resealable plastic bags to acclimate tadpoles ~ \$25.00 total
- 4 Coolers to transport tadpoles and adults in their containers ~ \$40.00 total
- 15 Sheets of plywood ~ \$375.00 total
- PIT-tags – 50 tags ~ \$375.00 total
- 1 PIT-tag reader ~ \$425.00 each

A total of 116 hours would be required.

The estimated cost to complete sub-task 1.2 is \$15,370.

The total estimated cost to support the County with Task 1 Implementation of the California Red-legged Frog Management Plan is \$26,720.

## **Task 2. Pre-construction Monitoring**

Pre-construction monitoring would begin approximately 2 weeks after the initial California red-legged frog relocation efforts were completed. This task also includes a nest clearance survey and small mammal nest dismantling prior to construction activities. To comply with the Migratory Bird Treaty Act, a bird survey is required prior to construction. However if conducted outside of the established bird breeding season (defined by CDFG as after August 15) it is expected that few to no breeding birds would be encountered and that if raptor nests were observed fledglings would be independent of the nest by this time.

### **2.1. California Red-legged Frog Monitoring**

Monitoring after the initial relocation effort at the Tajiguas in-channel basins would commence approximately two weeks following the initial relocation phase. Considering the actual start date will depend on receipt of all permits and approvals, for the purposes of this proposal we will assume that the initial relocation is conducted during the first week of June. Approximately two weeks after the initial relocation effort, AECOM biologists would return to the basins to search for any returning or new California red-legged frogs. Any individuals identified during these surveys would be checked for PIT-tag identification (or a PIT-tag would be inserted), weighed, measured, and moved to Baron Ranch. The monitoring would then repeat five times between June 1 and August 15.

The proposed monitoring schedule would be:

1. Week of June 14
2. Week of June 28
3. Week of July 12
4. Week of July 26
5. Week of August 9

Monitoring would be conducted for two nights for five weeks scheduled two weeks apart. A total of ten nights of surveys would be conducted requiring approximately 8 hours for surveys. A total of 80 hours per survey per biologist would be required. Biologists would conduct surveys in teams of two for a total of 160 hours. An additional 32 hours of oversight by senior biologists and herpetologist is included in this task. Monitors will provide a summary of activities after each survey via email to a RRWMD representative.

A total of 182 hours would be required.

The estimated cost to complete sub-task 2.1 is \$19,320.

## **2.2. Pre-Construction Surveys – General Nesting Bird Survey and Mammal Nest Dismantling**

Prior to the start of ground clearing activities, agencies typically require a pre-construction survey to check the area for sensitive species and any nesting birds. Because permits have not been issued to date, requirements for this survey have not been specified. Previous projects have required that clearance surveys occur no more than 72 hours prior to the start of construction activities. Additionally, when active nests were identified a buffer distance was established around the nest. The buffer distance was dependent on the species identified noting that listed species and raptor species required buffers of up to 500 feet. Surveys for breeding birds and small mammal nest dismantling would be conducted by two AECOM biologists and may consist of up to 2 days with biologists surveying for 10 hour days.

Biological monitors qualified to conduct bird surveys would survey for any bird nests and determine if nests are active. Additionally, monitors would identify and GPS all potential San Diego woodrat (*Neotoma lepida intermedia*) (CDFG species of special concern) nests. After recording the location, all potential nests would be dismantled. Any potential American badger (*Taxidea taxus*) (CDFG species of special concern) and ringtail (*Bassariscus astutus*) (CDFG fully protected species) dens would be identified, evaluated for activity, and subsequently filled if abandoned. GPS locations of dismantled nests and dens would be recorded.

Monitors would provide a summary of completed work, total number of dismantled nests, and any other sensitive species issues at the end of each work day to a RRWMD representative via email.

An estimated 48 hours would be required to complete this task which includes 8 hours of senior biologist oversight.

The estimated cost to complete sub-task 2.2 is \$4,030.

## **2.3. Management Plans for Two-striped Garter Snake and Southwestern Pond Turtle**

Prior to the start of pre-activity surveys a management plan would be developed for the two-striped garter snake (*Thamnophis hammondi*) and the southwestern pond turtle (*Clemmys marmorata pallida*); both CDFG species of special concern. The two-striped garter snake is known to occur within the Tajiguas in-channel basins and the southwestern pond turtle

although never observed in the sedimentation basins or within the Pila Creek watershed, has a moderate potential to occur due to the close proximity of known populations. A brief management plan for these two species would be developed and adapted to coincide with the pre-activity surveys and California red-legged frog relocation and monitoring sub-tasks.

It is estimated that the plan would be no longer than 5 pages and one draft would be prepared for review and then finalized after RRWMD provides comments. Preparing the plan would take approximately 10 hours. An additional 4 hours would be added to review and address comments.

The estimated cost to complete sub-task 2.4 is \$1,690.

#### **2.4. End-of-Monitoring Reporting**

A report describing the California red-legged frog relocation, number of animals marked, and all results of monitoring for the California red-legged frog, breeding birds, and small mammals would be submitted to RRWMD to comply with expected permitting requirements. The report would include maps, photos, and GPS locations of dismantled nests and dens as well as all pertinent information related to the capture and release sites for translocated California red-legged frogs. One draft would be prepared for review and then finalized after RRWMD provides comments. Preparing the report would take approximately 37 hours. An additional 8 hours would be added to review and address comments.

An estimated 45 hours would be required to complete this task.

The estimated cost to complete sub-task 2.4 is \$5,005.

The estimated cost to support the County with Pre-construction Monitoring is \$30,045.

### **Task 3. Construction Monitoring**

For the purposes of this proposal we will assume that project activities will begin August 17, 2009 and continue through November 30, 2009. If construction occurred five days per week this would amount to 75 days. There are some unknown contingencies associated with the construction monitoring. Because the agencies have not finalized their requirements, this proposal will assume that monitors will be present every day. However, at some stage during the project implementation the basins will be filled with low permeability soil and the riparian corridor upstream will be cleared and grubbed and no additional habitat would be available resulting in a reduction in the number of days required for monitoring. California red-legged frogs move primarily at night. Monitoring for the protection of this species is most critical immediately prior to construction activities each morning. We will assume that approved monitors will clear the construction area each morning and that there will be a trained foreman on-site who could stop work if necessary should frogs be encountered after the area has been cleared.

#### **3.1. Monitoring**

Under this assumption we estimate 5 hours each day for construction monitoring. This would require a total of 375 hours if a monitor was required for all 75 days of construction. An additional 10 hours of senior biologist oversight is added to this task.

The estimated cost to complete sub-task 3.1 is \$34,850.

### **3.2. Educational Briefing**

An additional training session would be conducted for all personnel working on the site which would require 6 hours of preparation time and 2 hours to present this information (two presentations 1 hour each).

The estimated cost to complete sub-task 3.2 is \$600.

### **3.3. Reporting**

An additional one-half hour would be added for a daily monitoring report to be submitted to a RRWMD representative for an additional 38 hours. An end of construction monitoring report would be prepared summarizing all activities conducted, personnel involved, hours surveyed, and all sensitive species detected. One draft would be prepared for review and then finalized after RRWMD provides comments. Preparing the report would take approximately 20 hours. An additional 8 hours would be added to review and address comments.

The estimated cost to complete sub-task 3.3 is \$7,435.

The estimated total cost to support the County for Construction Monitoring is \$42,885.

## **Task 4. Pre-construction Enhancements at Baron Ranch**

The agencies involved in permitting the reconfiguration project have requested that pool enhancements in Arroyo Quemado or a new California red-legged frog off-channel pool be completed prior to moving any California red-legged frogs from the Tajiguas Landfill to Arroyo Quemado. At this time we are assuming that enhancements would occur within Arroyo Quemado rather than constructing a new off-channel pool. It is anticipated that the pool enhancements will require anchoring large in-stream structures and stabilization, placement, or movement by heavy equipment and require 404 permit approval from the ACOE. The design elements of the Arroyo Quemado enhancements are included in a previous SOW with EcoSystems Restoration Associates (now P&D Consultants, a district in AECOM) and the engineering specifications of the design will be completed by a County engineer. These elements will be submitted as an addendum to the ACOE 404 permit application and all approvals would be received prior to initiating construction in Arroyo Quemado.

AECOM assumes that existing in-stream structural objects such as large woody debris or rocks will be used to create or enhance 1 or 2 pools. Construction assumes that structural objects are available on-site or nearby and that these would not be purchased. AECOM assumes that the County will furnish the equipment and operators and that AECOM will manage the construction of the pools. Disturbed channel banks would be stabilized using biomechanical stabilization techniques such as willow wattles or other vegetative stabilization techniques. AECOM will supply two laborers and a restoration ecologist to complete the work. It is estimated that approximately 3 days would be required to complete the pool enhancements estimating 10-hour work days. Per diem and travel costs are included in this estimate for four people for 3 days. The estimate includes planting material, erosion control materials, and anchoring materials such as cabling and rebar.

The estimated cost to implement the pool enhancements in Arroyo Quemado would be \$15,700.

**Task 5. Early Pre-construction Clearance Surveys at the Tajiguas Landfill**

If the project activities occur prior to August 15 (CDFG defined nesting season for migratory birds) surveys for active nests will be conducted to prevent violations of the Migratory Bird Treaty Act. Previous projects have required the surveys to occur no more than 72 hours prior to the start of construction activities. Additionally, when nests were identified a buffer distance was established around the nest. The buffer distance was dependent on the species identified noting that listed species and raptor species required buffers of up to 500 feet.

Nest Clearance surveys would require 4 biologists for two days. This team would cover the entire area scheduled for disturbance prior to activities. All areas would be searched for active bird nests by listening for singing and calling birds, observing bird behavior, and searching for nests. Small mammal nest dismantling and potential ringtail and American badger den surveys and destruction would also occur during the period of bird surveys. Observed bird nests would be identified to species, their location noted using a GPS, and flagged. A daily survey report would be submitted. Small mammal nests locations and potential ringtail and American badger dens will be noted using a GPS prior to dismantling or destruction. We estimate 10-hour days for a total of 80 hours.

The estimated cost to support the County in the early pre-construction nest clearance surveys and small mammal nest dismantling would be \$6,300.

**TOTAL FEE ESTIMATE**

**The total estimate to complete all tasks is \$121,650.**

An enclosed spreadsheet details the estimated expenditures by job classification and also estimates other expenses relative to each task as described above. A proposed schedule is also enclosed.

The above mentioned services will be provided on a Time & Materials basis with a "Not to Exceed" amount for each task. Therefore, any unused funds will be left for subsequent work or to the County's discretion. If this proposal is satisfactory please sign two copies and return to Mr. Tito Marchant so that we may provide a signed original for your records.

If you have any questions or comments regarding this scope of work and the fee estimates, please do not hesitate to contact me at (619) 291-1475.

Sincerely,

Tito Marchant  
Vice President

***P&D CONSULTANTS, A DISTRICT IN AECOM***

**COUNTY OF SANTA BARBARA –PUBLIC WORKS  
RESOURCE RECOVERY AND WASTE MANAGEMENT**

By: \_\_\_\_\_  
Tito Marchant  
Vice President

By: \_\_\_\_\_  
Joddi Leipner  
Senior Engineering Environmental Planner

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Date: March 6, 2009																
Client: Santa Barbara County Public Works Department																
Project: Tajiguas Reconfiguration - CRLF Relocation & Construction Monitoring																
	Project Principal (\$185)	Sr. Herpetologist (\$110)	Sr. Biologist/PM (\$110)	Sr. Fluvial Geomorphologist (\$165/hr)	Restoration Ecologist (\$95/hr)	Biological Monitors (\$75)	Sr. GIS & Mapping (\$105)	Laborer (\$45/hr)	Document Preparation (\$60)		Total Labor Costs	Per Diem (\$175/day)	Trucks (\$150/day)	Misc. Equip. & Supplies*	Total Direct Costs	Totals
<b>Task 1 - CRLF Plan Implementation -Relocation</b>																
Chytrid Treatment	5	30	30								\$ 7,525	\$ -	\$ 1,000	\$ 2,825	\$ 3,825	\$ 11,350
CRLF Relocation	8	50	60								\$ 13,580	\$ -	\$ 450	\$ 1,340	\$ 1,790	\$ 15,370
											<b>Task 1 Total</b>	<b>\$ -</b>	<b>\$ 1,450</b>	<b>\$ 4,165</b>	<b>\$ 5,615</b>	<b>\$ 26,720</b>
<b>Task 2 - Pre-construction Monitoring</b>																
Pre-construction Monitoring- CRLF		24	88			80					\$ 18,320	\$ -	\$ 1,000	\$ -	\$ 1,000	\$ 19,320
Pre-construction Monitoring- nest dismantling			8			40					\$ 3,880	\$ -	\$ 150	\$ -	\$ 150	\$ 4,030
Management Plan for Garter Snake & Pond Turtle	2	5	7								\$ 1,690	\$ -	\$ -	\$ -	\$ -	\$ 1,690
End-of-Monitoring Report	5		30				4		6		\$ 5,005	\$ -	\$ -	\$ -	\$ -	\$ 5,005
											<b>Task 2 Total</b>	<b>\$ -</b>	<b>\$ 1,150</b>	<b>\$ -</b>	<b>\$ 1,150</b>	<b>\$ 30,045</b>
<b>Task 3 - Construction Monitoring</b>																
Monitoring			10			375					\$ 29,225	\$ -	\$ 5,625	\$ -	\$ 5,625	\$ 34,850
Prepare and Present Educational Briefing						8					\$ 600	\$ -	\$ -	\$ -	\$ -	\$ 600
Reporting	9		8			58	4		2		\$ 7,435	\$ -	\$ -	\$ -	\$ -	\$ 7,435
											<b>Task 3 Total</b>	<b>\$ -</b>	<b>\$ 5,625</b>	<b>\$ -</b>	<b>\$ 5,625</b>	<b>\$ 42,885</b>
<b>Task 4 - Baron Enhancements</b>																
Construction of Pool Structures	12		8	30	10			60			\$ 11,700	\$ 2,100	\$ 900	\$ 1,000	\$ 4,000	\$ 15,700
											<b>Task 4 Total</b>	<b>\$ 11,700</b>	<b>\$ 2,100</b>	<b>\$ 900</b>	<b>\$ 1,000</b>	<b>\$ 15,700</b>
<b>Task 5 - Early Pre-Construction Clearance</b>																
Pre-Construction Clearance						80					\$ 6,000	\$ -	\$ 300	\$ -	\$ 300	\$ 6,300
											<b>Task 5 Total</b>	<b>\$ 6,000</b>	<b>\$ -</b>	<b>\$ 300</b>	<b>\$ -</b>	<b>\$ 300</b>
<b>TOTAL</b>	<b>41</b>	<b>109</b>	<b>249</b>	<b>30</b>	<b>10</b>	<b>641</b>	<b>8</b>	<b>60</b>	<b>8</b>	<b>Project Total</b>	<b>\$ 104,960</b>	<b>\$ 2,100</b>	<b>\$ 9,425</b>	<b>\$ 5,165</b>	<b>\$ 16,690</b>	<b>\$ 121,650</b>
* Miscellaneous equipment and supplies: This includes Trimble GPS at \$150/day and Toughbooks at \$150/day.																



				2009								
Schedule	March	April	May	June	July	August	Sept	Oct	Nov	Dec		
SOW- CRLF Relocation												
<b>Task 1 CRLF Plan Implementation</b>												
Chytrid Treatment				10 days	- start after receipt of Corps permit.							
Frog translocation					Begin immediately after receipt of permits or after Chytrid treatment							
<b>Task 2 Pre-Construction Monitoring</b>												
Monitoring						15-Aug						
Pre-construction Survey							immediately prior to construction					
Reporting							week of Aug 9					
<b>Task 3 Construction Monitoring- Tajiguas</b>												
Monitoring						15-Aug	30-Nov					
Reporting												
<b>Task 4 Baron Ranch Enhancements</b>												
Implementation												
<b>Task 5 - Early Pre-construction Clearance</b>												
Migratory Bird Nesting surveys							Prior to August 15					
Small Mammal Nest Dismantling							Prior to August 15					
Additional construction Monitoring hours							Prior to August 15					