Compliance Biology, Inc., "Western Spadefoot Toad Habitat Enhancement and Monitoring Plan, Valencia Commerce Center Project, Los Angeles County, California" (November 2004; 2004G)

Western Spadefoot Toad Habitat Enhancement and Monitoring Plan Valencia Commerce Center Project, Los Angeles County, California

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Valencia Commerce Center Project, Los Angeles County, CA

The following presents a western spadefoot toad (*Spea hammondii*) habitat enhancement and monitoring plan to be implemented for the Valencia Commerce Center project, located in the County of Los Angeles, California (**Exhibit 1**). This plan is intended to provide information to the County of Los Angeles (County), The Newhall Land and Farming Company (Newhall Land), and the California Department of Fish and Game (CDFG) regarding design criteria and specific tasks for the creation of breeding pools and associated upland habitat for the species, as well as details associated with five years of monitoring the created habitats.

BACKGROUND

Following notification of the potential presence of spadefoot toads on site by Newhall Land personnel, Compliance Biology surveyed the subject area April 2, 2004. During site evaluations, four seasonal rainpools were discovered. One of the four pools supported several hundred western spadefoot toad tadpoles. Under the direction of CDFG, Compliance Biology, Inc. collected approximately 200 western spadefoot tadpoles from the occupied seasonal pool. These toads were maintained in captivity until metamorphosis was complete. Approximately 8 weeks later, the juvenile spadefoot toads were released in on the south side of Hasley Creek, outside of proposed grading limits for a current streambed realignment project, in open scrub areas at the base of hillsides where the relocation breeding pools that are the subject of this report will be incorporated into a mitigation plan for riparian and adjacent upland habitat impacts resulting from the Hasley Creek realignment project.

General Western Spadefoot Toad Background

Western spadefoot toad adults are essentially terrestrial, only entering aquatic habitats for breeding. This species prefers areas of open vegetation and short grasses, where the soil is sandy or gravelly. They occur in washes, floodplains of rivers, alluvial fans, and playas, but also range into the foothills and mountains (Stebbins 1985). They spend most of the year in a dormant to semi-dormant state burrowed in upland habitat adjacent to the rainpool sites. This species requires seasonal rainpools that last a minimum of four weeks as eggs take from 1 to 6 days to hatch and metamorphosis can be completed within 3 to 11 weeks (Jennings and Hayes 1994). Breeding habitat must be seasonal such that predators including bullfrogs and predatory fish do not become established. Breeding adults typically emerge during and/or immediately following relatively warm rains in late winter to early spring. Female western spadefoot toads deposit small clusters of 10 to 42 eggs to plant stems or other debris in the pool (Jennings and Hayes 1994).

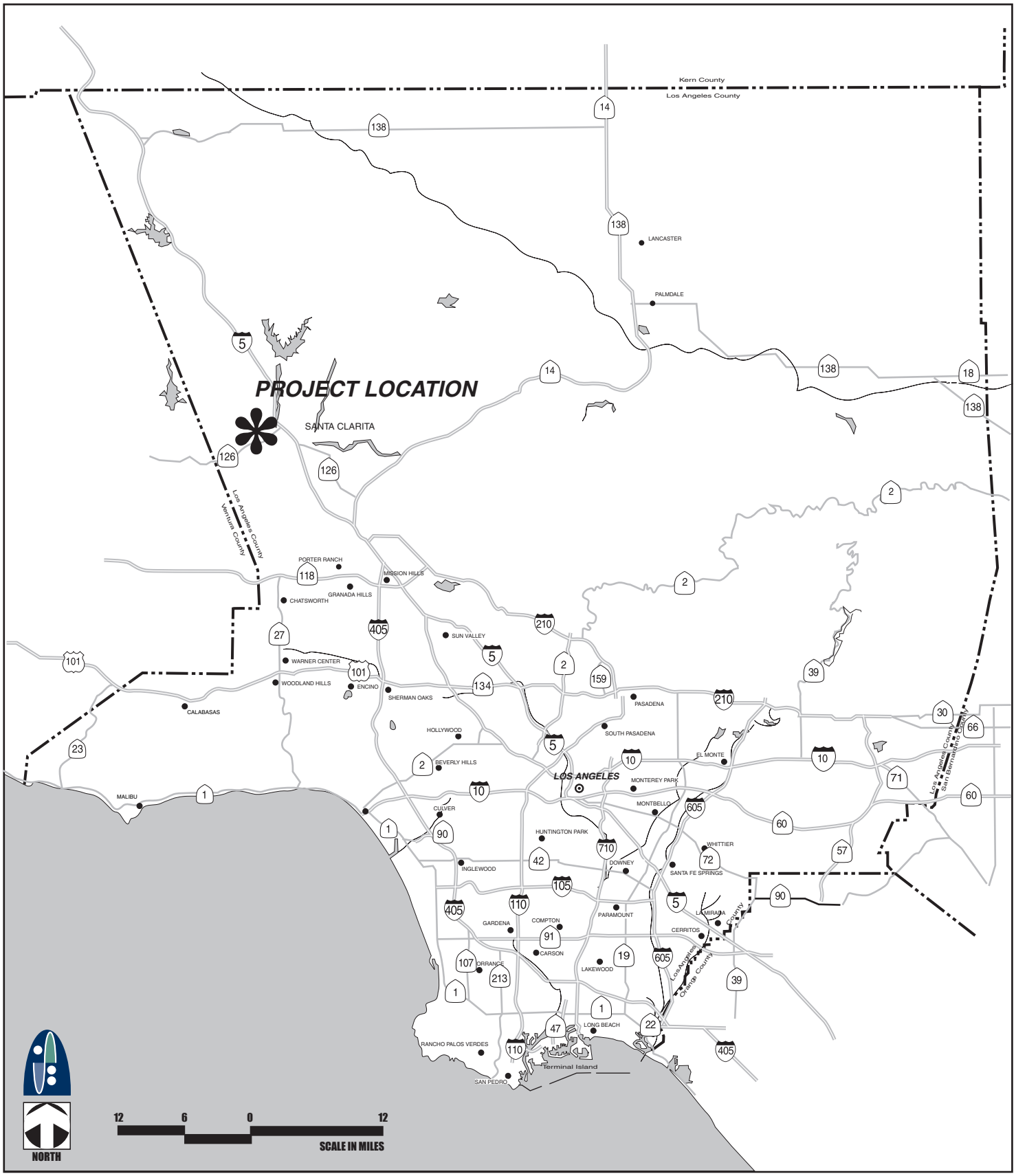


figure 1

REGIONAL LOCATION

HABITAT ENHANCEMENT PLAN

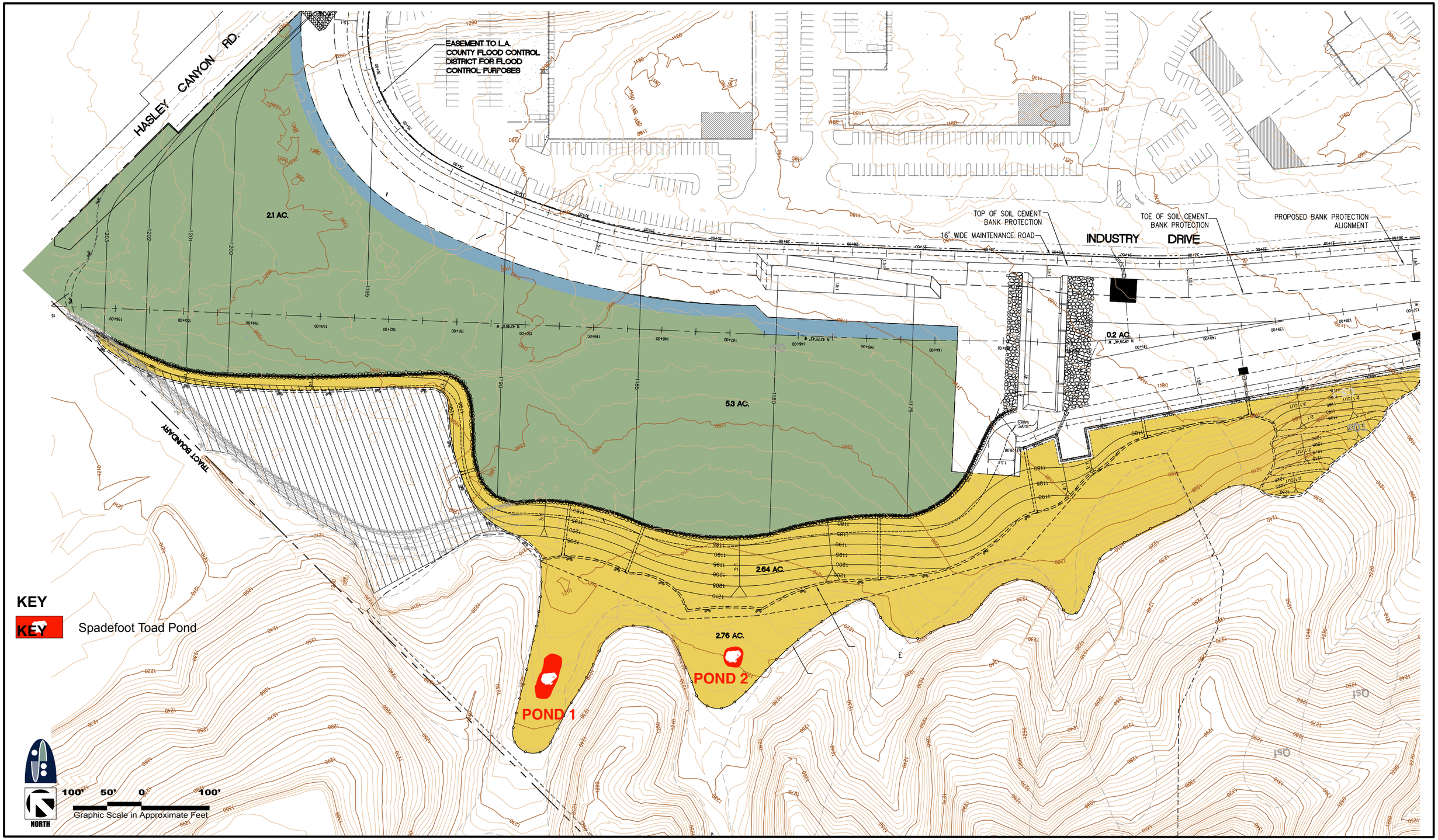
As western spadefoot toad requires both upland and seasonal rainpools to complete their life cycle, this plan involves habitat enhancement that includes both improvement of existing upland habitat and creation of two seasonal rainpools. The primary goal of the plan will be to provide breeding pools that result in successful breeding of western spadefoot toads. The secondary goal will be to maintain suitable non-breeding season upland habitat that can sustain western spadefoot toads on the project site.

Construction of Rainpools

Exhibit 2 illustrates locations adjacent to Hasley Creek selected for construction of two seasonal rainpools. These locations were selected based on the availability of open space and the proximity of naturally occurring resources suitable to support western spadefoot toads. These locations have already been approved by CDFG and are incorporated into a habitat mitigation plan associated with the Hasley Creek realignment project. The pools are not placed in the direct path of any drainage as such placement could result in too much water entering the pools and/or damage to the pools by flowing water. Naturally occurring occupied seasonal rainpools are typically located in open flat areas that are not fed by a stream or particular watershed. These natural pools are dependent upon sufficient rainfall to provide enough water in the pool.

Within the region of the proposed pools, the average annual seasonal rainfall is approximately 18 inches. This rainfall typically occurs during the Southern California historic wet season that is generally defined as mid-October through mid-April. Within this 5 month time period, the majority of the average annual rainfall occurs from January through March and averages approximately 4-inches per month.

Based on the pool sizes and a conservative drainage catchment area that is approximately 20 times the pool area, the larger of the two pools would accumulate about 0.3 acre-feet of water and the smaller pool would accumulate approximately 0.15 acre-feet of water. Within this same time period, the average loss due to evapotranspiration is approximately 0.1 acre feet. The proposed pool design utilizes a liner material that will eliminate water losses through infiltration, thus the only water losses will occur through direct surface evaporation and evapotranspiration. Based on this analysis the proposed pools would retain water during the three month period from January through March with average annual rainfall events.



SOURCE: Base Topography, PACE Pacific Advanced Civil Engineering, Inc., March 2004.

exhibit 2

SPAEFOOT TOAD PONDS

As the rainy season ends and the region moves into summer weather conditions, average rainfall diminishes to almost 0 inches and water losses due to evapotranspiration increase significantly to approximately 0.5 acre feet. At this average rate of evaporative loss, the pools can be expected to dry up within a 4 to 6 week period after the end of the rainy season. Overall, the pools can be expected to retain water for a total of approximately 3-5 months depending on the timing of rain events in any given year.

Pool 1 will be approximately 60 feet in length and 40 feet in width and Pool 2 will be an approximately 30-foot circle (**Exhibit 3**). Both pools are designed to be approximately 3 feet in depth, gradually and evenly sloping upward and outward from the center to the outer limits of the pool banks. The basic depth and shape of both pools will be excavated using a backhoe or similar equipment. Hand tools will be utilized to smooth out rough areas and perform final shaping. Should any burrowing western spadefoot toads be observed during the excavation, CDFG will be notified and the animals will be maintained in captivity by a CDFG approved biologist until the habitat enhancement activities are completed.

Upon completion of excavation, each pool will first be lined with a 15mil polyester mat that protects the pond liner from puncture. A 45mil Firestone EPDM pond liner will then be placed over the polyester mat and extend approximately two feet beyond the limits of the pond banks. That excess material will then be buried down into a narrow trench excavated around the perimeter of the pool. The trench will then be filled in such that the top of the liner is buried perpendicular to the top of the pond slope.

Upon completion of installation of the pond liner, a one to two inch layer of ¼-inch or less pea gravel will be placed over the entire surface of the liner in an attempt to prevent exposure of the liner to direct sunlight. Larger rock will be randomly placed throughout the pool to serve as stabilizing points for the pea gravel to prevent it from sloughing down to the bottom. A few scattered twigs will be placed within the pools to serve as substrate for oviposition.

The proposed pond design utilizes a liner material that is guaranteed for 25 years with direct UV exposure. The planned design will cover the liner material with a gravel material that will protect the surface and minimize UV exposure, which is expected to extend the life of the liner material considerably. In addition, it is anticipated that sediment material will be deposited in the ponds over time as a result of normal rainfall runoff and wind blown dust deposits. This sediment will serve to further protect the liner without significantly diminishing the pond storage capacity.

If portions of the liner were exposed to UV light, potential failure might occur 25-30 years after installation. During this time frame, the underlying soils will consolidate and minimize potential losses

of water due to infiltration. Also, during this time period, the ponds will become "naturalized" through development of vegetation from seeds deposited in and adjacent to the ponds by animals and wind. This "naturalization" process will further assist in providing a base condition within the pond that would minimize the potential for infiltration losses.

Upland Habitat Enhancement

After construction of both pools is complete and all equipment and construction materials have been removed from the site, an area of not less than 200 feet in diameter around the outer edge of each pool will be enhanced to serve as suitable upland habitat for western spadefoot toad.

Initial activities will include removal of all non-native vegetation to the greatest extent feasible. Invasive species (if present) including giant cane (*Arundo donax*), tamarisk (*Tamarix* sp.), and castor bean (*Ricinus communis*) shall be removed, including the root base, and transported off site to an appropriate disposal facility. Tamarisk and castor bean shall be fully bagged and tied at the base stem prior to removal to prevent the dropping of seed within the habitat enhancement area during removal. All other non-native vegetation will be uprooted by hand or with hand tools and removed from the site. All naturally occurring native plants will be left in place.

Following completion of non-native plant removal, native plants will be installed as appropriate within remaining open spaces within the enhancement area under the direct supervision of a qualified biologist, to create an area of relatively open, low-growth, native scrub/grassland habitat. Soils in open areas not currently supporting native vegetation will be turned with hand tools to make them more friable, resulting in conditions more suitable for burrowing by western spadefoot toad. Should any burrowing western spadefoot toads be detected during this activity, CDFG will be notified and all spadefoot toads detected will be collected and maintained in captivity by a CDFG approved biologist until habitat enhancement activities are completed. Supplemental plantings may include California buckwheat, California broom, California sagebrush, and native bunch grasses such as foothill needlegrass (*Stipa lepida*), purple needlegrass (*S. pulchra*), and coast range melic (*Melica imperfecta*). In order to provide some shade to the seasonal pools, supplemental plantings of mule fat (*Baccharis salicifolia*) and/or coyote brush (*B. pilularis*) will be placed around the perimeter of both pools. Shading the pools is expected to result in slower evaporation of water in the pools following seasonal rains.

MONITORING PLAN

In order to ensure success of the habitat enhancement, monitoring of the enhanced habitat area will take place for a period of five years with the first monitoring effort taking place one year from completion. The monitoring effort will involve two primary tasks: seasonal surveys for the presence/absence of western spadefoot toads and evaluation/maintenance of the created breeding pools and enhanced upland habitat adjacent to the pools.

Annual Presence/Absence Surveys

Depending upon seasonal weather conditions, but generally beginning in early February, a qualified biologist familiar with the identification of all life phases of western spadefoot toad will conduct at least three separate surveys of the enhanced habitat area during or immediately following the first relatively warm rainstorms that produce enough volume of rain to develop temporary rainpools. These surveys will begin the first breeding season following completion of this plan. The biologist will determine the presence of breeding western spadefoot adults, egg masses, and/or tadpoles. Should any life stage be detected, at least one subsequent visit shall be made to ensure the constructed seasonal pools are maintaining water long enough to support complete metamorphosis. Such a determination will be made by direct observation of newly metamorphosed toadlets.

Success Criteria

The primary goal of this plan will be considered a success when successful breeding of western spadefoot toads occur in either or both of the created seasonal pools. In an effort to ensure this success, the annual monitoring will include detailed inspection of the manufactured seasonal pools. Inspection will include looking for any apparent damage to the liner, even displacement of the gravel to ensure coverage of the liner, and determination if the design of the pond has been successful in maintaining water only long enough to support complete metamorphosis of western spadefoot toads, and not so long that it allows for local predatory aquatic organisms, such as African clawed frogs, to become established.

Contingency Actions

Should it be determined that the pond liner has been damaged, repairs will be made immediately to a degree that it meets the original design criteria (i.e., holds water effectively).

If inspection reveals that the gravel has sloughed down toward the middle of the pool, the inspector shall redistribute the gravel to result in even coverage of the liner. It may also be appropriate to add or relocate larger rocks to serve as additional stabilization points for the gravel.

If it becomes apparent after the first two annual evaluations that the constructed pool(s) does not maintain sufficient amounts of water for a long enough period of time, as compared to naturally occurring seasonal rainpools in the region, CDFG and the County will be consulted regarding the possible construction of new pools utilizing different design criteria (e.g. clay-lined bottom).

If it becomes apparent during any of the five annual surveys that the constructed pools are successfully holding water, but for too long after western spadefoot toad metamorphosis, a plan will be developed that will involve either a design modification or manually dewatering the pools after complete metamorphosis. This action will only be required if invasive aquatic predators, such as African clawed frogs, are becoming established in the pools(s).

Annual Upland Habitat Enhancement Area Evaluation

Five annual evaluations of the enhanced upland habitat areas will be timed to coincide with the annual presence/absence surveys described above. The monitoring biologist will evaluate the upland habitat to ensure the native plants present are thriving and that the non-native plants are not predominating. Additionally, photographs will be taken from established locations for inclusion in the annual reports to aide in the illustration of the progression of this plan.

Success Criteria

The secondary goal of this plan will be considered a success when the enhanced upland habitat surrounding the constructed seasonal rainpools are thriving and non-native vegetation represents less than 20 percent of the vegetation within the enhanced area. In an effort to ensure this success, the annual monitoring will include evaluation of all the upland vegetation within the enhancement area. Inspection will include looking for non-native and invasive plant species and evaluation of the overall condition of the area (e.g., any apparent human disturbances that could be controlled).

Contingency Actions

Should it be determined at the time of inspection that any invasive species have become re-established (i.e., *Arundo*, *Tamarix*, etc.), the monitor will contact the County, so that Newhall Land can be directed to have these invasive species removed utilizing the appropriate techniques (hand tools, etc.) to minimize impacts to the enhancement area.

Should it be determined at the time of inspection that supplemental native plantings are not thriving, the monitor will contact the County, so that Newhall Land can be directed to have any dead or dying plants replaced at 2:1 within the habitat enhancement area with new stock.

Should it be determined at the time of inspection that there are apparent anthropogenic disturbances that can be remedied, the biological monitor will contact the County, so that Newhall Land can be directed to take remedial actions to prevent further disturbance to the habitat enhancement area.

Reporting

Within 45 days of completion of each annual survey, the biological monitor will prepare a letter report discussing the results of the monitoring effort. The report will include any information regarding the presence of western spadefoot toad, aquatic predators, and conditions of the habitat enhancement area. The report will also include description of any remedial actions taken and any suggestions that would further improve the potential success of the plan and will include photographs that illustrate the existing conditions of the enhancement area at the time of monitoring. A report will be delivered to the County, Newhall Land, and CDFG.

REFERENCES

CDFG. 2003. Special Animals [species of special concern]. State of California, The Resources Agency, Department of Fish and Game, Natural Heritage Division, Natural Diversity Data Base, January 2003 update.

Impact Sciences, Inc. 1999. *Environmental Impact Report for the West Creek Project* (County Project No. 98-008; SCH No. 1998021052).

Jennings, Mark R. and Marc P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California.* Final report submitted to California Department of Fish and Game. Contract No. 8023.

Stebbins, R. C. 1985. *Western Reptiles and Amphibians*., 2nd ed. Houghton-Mifflin Company. Boston, Massachusetts.