Low-Effect Habitat Conservation Plan

Permanente Site
Operation and Maintenance

Prepared for:

Lehigh Southwest Cement Company

May 2022

Prepared by:

GEI Consultants

Consulting Engineers and Scientists

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Prepared for:

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Contact:

Carolina Addison
Director of Environment Land Resource Development
408.257.7476 ext. 106

Prepared by:

GEI Consultants, Inc.
2868 Prospect Park Drive, Suite 400
Sacramento, CA 95670

Contact:

Cindy Davis
Environmental Program Leader
916.631.4515

May 12, 2022

GEI Project No. 1903432

Table of Contents

Tables

Appendices

Executive Summary

Lehigh Southwest Cement Company (Lehigh) is applying for a permit pursuant to Section 10(a)(1)(B) of the Endangered Species Act of 1973 as amended (16 U.S.C. 1531 *et seq.*, 87 Stat. 884), from the U.S. Fish and Wildlife Service for the incidental take of the federally threatened California red-legged frog (*Rana draytonii*). Potential for take is associated with ongoing routine operation and maintenance of existing facilities at the Permanente Quarry, a cement and limestone/aggregate mining operation near the City of Cupertino in Santa Clara County.

Lehigh is applying for a Section 10(a)(1)(B) permit for a period of 20 years and proposes to implement the Low-effect Habitat Conservation Plan (HCP) described herein, which provides measures for avoiding, monitoring, minimizing, and mitigating adverse effects on the California red-legged frog. Operation and maintenance activities covered by this HCP include storm water capture/sedimentation basin operation and maintenance; erosion control; material transport and storage; vehicle traffic and equipment operation; road and vegetation maintenance; and water quality monitoring.

Although the Covered Activities would occur primarily in areas that provide poor-quality habitat for California red-legged frog, these activities have potential to result in take. Potential take of California red-legged frog that could result from implementing Covered Activities would very likely be limited to harm, capture, and direct injury or mortality. Approximately 0.07 acre of potential breeding habitat would be converted to non-breeding aquatic habitat, and Covered Activities would result in repeated, temporary disturbance to: (1) approximately 0.24 acre of potential breeding habitat, (2) approximately 0.67 acre of non-breeding aquatic habitat, and (3) approximately 1.64 acres of upland habitat. Impacts on breeding habitat include lining a 0.7-acre storm water capture/sedimentation basin and monitoring and potential habitat management at Pond 14, the proposed relocation site for California red-legged frogs encountered in areas where ongoing routine operation and maintenance activities occur.

Implementing avoidance and minimization measures, including surveys for the California red-legged frog and capture and relocation of individuals found in areas where operation and maintenance activities would occur, would substantially reduce potential for direct injury or death as a result of Covered Activities. To compensate for unavoidable take and permanent loss and repeated temporary impacts to 2.2 acres of suitable aquatic and upland habitat for the California red-legged frog from ongoing routine operation and maintenance activities of existing facilities, Lehigh will purchase 6.6 acres of California red-legged frog habitat credits at the Ohlone West Conservation Bank in Alameda County. Compensatory mitigation is not required for impacts at Pond 14 because monitoring and potential habitat management would be implemented for the purpose of maintaining the pond as California red-legged frog breeding habitat. With implementation of the proposed avoidance and minimization measures and purchase of habitat credits at an approved mitigation bank, implementing the Covered Activities would have relatively minor and negligible effects on the California red-legged frog and other environmental values and resources.

Lehigh will conduct monitoring to ensure compliance with avoidance and minimization measures and to determine if biological goals and objectives of this HCP are being met, to track and report on Covered Activities and associated surveys and monitoring that are conducted, and to evaluate the potential need for adaptive management and implement any necessary measures that are identified.

1. Introduction and Background

1.1 Overview

This low-effect habitat conservation plan (HCP) has been prepared for ongoing routine operation and maintenance of existing facilities at the Lehigh Southwest Cement Company (Lehigh) Permanente Quarry (quarry), a cement and aggregate mining operation. These activities include storm water capture/sedimentation basin operation and maintenance; erosion control; material transport and storage; vehicle traffic and equipment operation; road and vegetation maintenance; and water quality monitoring.

This HCP has been prepared pursuant to the requirements of Section 10(a) of the Federal Endangered Species Act (ESA), as amended, and corresponding regulations 50 CFR Section 17.22. The HCP is intended to provide the basis for issuance of a Section 10(a)(1)(B) permit to Lehigh, authorizing incidental take of the federally threatened California red-legged frog (*Rana draytonii*).

1.2 Permit Holder and Duration

Lehigh is applying for a Section 10(a)(1)(B) permit for a period of 20 years, to ensure coverage for ongoing routine operation and maintenance activities throughout the quarry's anticipated material extraction and reclamation phases.

1.3 Permit Area

The quarry is located on the Permanente property in the Santa Clara County foothills, west of the City of Cupertino (**Figure 1** [all figures are provided in **Appendix A**]). Ongoing operation and maintenance activities occur throughout the quarry, but the 10.2-acre permit area (**Figure 2**) is limited to portions of the property where such activities ("Covered Activities") occur near suitable habitat for California red-legged frog and there exists a reasonable potential for "take" of California red-legged frog to occur. These specific locations are primarily adjacent to Permanente Creek but also include several off-creek storm water capture/sedimentation basins. The permit area also includes Pond 14, the location to which California red-legged frogs that require removal from maintenance areas would be relocated.

1.4 Covered Species

California red-legged frog is the only species for which Lehigh is requesting take coverage under the Section 10(a)(1)(B) permit. It was determined that, with implementation of monarch butterfly (*Danaus plexippus*) avoidance and minimization measures described in Section 5.2.1.2, there is no potential for take of other species currently listed, proposed for listing, candidates for listing, or otherwise reasonably likely to become listed under the ESA during the permit duration.

1.5 Regulatory Framework

1.5.1 Federal Endangered Species Act

The ESA and its implementing regulations prohibit take of any fish or wildlife species that is federally listed as threatened or endangered without prior approval pursuant to either Section 7 or Section 10(a)(1)(B) of the ESA. The ESA defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The ESA's implementing Federal

regulations at 50 CFR 17.3 further define the terms “harm” and “harass” as used within the definition of take. Harm is any act that actually kills or injures a federally listed species, including significant habitat modification or degradation that has such a result. “Harass” is defined as “an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering.”

Section 10(a) of the ESA establishes a process for obtaining an incidental take permit, which authorizes non-federal entities to incidentally take federally listed wildlife or fish subject to certain conditions. Incidental take is defined by ESA’s implementing regulations as take that is “incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.” Preparation of an HCP is required for all Section 10(a)(1)(B) permit applications.

1.5.2 Low-effect Habitat Conservation Plan

A low-effect HCP is appropriate for actions that individually or cumulatively have minor or negligible effects on federally listed, proposed, or candidate species and their habitats covered by the HCP and minor or negligible effects on other environmental resources. The purpose of a low-effect HCP is to expedite handling of HCPs for activities with inherently low impacts. Lehigh has determined, based on the “Screening Form for Determining Low-Effect Habitat Conservation Plans,” that implementing on-going operation, maintenance, and monitoring activities in compliance with the requirements of this HCP, along with the HCP’s conservation strategy and avoidance measures should qualify for a low-effect HCP because these activities have minor or negligible effects on federally listed species, candidate species, their environments, and other components of the human environment and would have no incremental impacts that would result in significant cumulative effects.

1.5.3 National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires that federal agencies analyze the environmental impacts of their actions, such as issuance of an incidental take permit. NEPA compliance for HCPs can include: (1) preparation of an environmental impact statement (generally prepared for high-effect HCPs); (2) preparation of an environmental assessment (generally prepared for moderate effect HCPs); or (3) a categorical exclusion (required for low-effect HCPs). Low-effect HCPs, as defined in the HCP Handbook (USFWS and NMFS 2016), are categorically excluded under NEPA, as specified by 516 Departmental Manual 8 of the U.S Department of Interior, Section 8.5.

1.5.4 National Historic Preservation Act

Pursuant to the National Historic Preservation Act, all federal agencies are required to examine the cultural impacts of their actions, such as issuance of an incidental take permit. This may require consultation with the State Historic Preservation Office and appropriate Native American Tribes.

2. Land Use and Covered Activities

2.1 Land Use and Ownership

The primary land use surrounding the permit area is mining, and activities incidental thereto, associated with the developed quarry facility. This land use applies to all of the Permanente property. Activities incidental to mining, such as stormwater management, vegetation control, and materials storage, completely surround several of the permit area components and occur immediately adjacent to at least one side of the remaining components. More specific information regarding the activities occurring in and around the permit area are described below. Portions of the permit area that are along Permanente Creek area bordered by relatively undisturbed forest, woodland, and scrub habitats south of the quarry and creek.

All components of the permit area and the larger Permanente property that surrounds the permit area are owned by Lehigh.

2.2 Covered Activities

2.2.1 Project Description

The project includes various Covered Activities associated with ongoing operation and maintenance of existing Permanente facilities near Permanente Creek and associated habitat, which largely includes areas near the entrance of the facility, the Cement Plant, the Rock Pile Area, the area downstream of in-stream Pond 13 (Reach 12 of Permanente Creek), and lower elevation storm water capture basins.

The project is divided into the following seven categories of Covered Activities, which are described in detail below, that occur in or adjacent to areas in which California red-legged frog is known or has potential to occur:

- Storm water capture/sedimentation basin operation and maintenance (including vaults and pump stations and heavy equipment for pond maintenance)
- Erosion control
- Material transport and storage
- Vehicle travel, equipment operation, and road and berm maintenance
- Vegetation maintenance
- Monitoring activities required by state and federal permits or other entitlements
- California red-legged frog habitat monitoring and management and predator monitoring and removal activities at Pond 14

Figures 3a through **3d** show the Covered Activities that would occur in each portion of the permit area.

2.2.2 Covered Activities

2.2.2.1 Storm Water Capture/Sedimentation Basin Operation and Maintenance

Storm water capture/sedimentation basins (also known as "ponds" onsite) provide storm water detention and sediment control for the Permanente site. These ponds are maintained according to the Stormwater Pollution Prevention Plan (SWPPP) and National Pollutant Discharge Elimination System (NPDES) permits applicable to the site. Storm water runoff collects in a series of swales and is conveyed to the sedimentation basins, before being released either to the Cement Plant Reclaimed System for treatment (*e.g.*, Pond 30) or to Permanente Creek (e.g., Pond 13B).

Storm water capture/sedimentation basins are located throughout the site (*see* Figures 3a–3d). Several basins are parallel to and immediately adjacent to Permanente Creek. Storm water capture/sedimentation basins range in size from 8,000 to 40,000 square feet.

The storm water capture/sedimentation basins are monitored before and after every storm event during the wet season and monthly during the dry months, by visual observation and field investigation. Conditions are inspected to evaluate the need for sediment removal and best management practices (BMPs) under the SWPPP. The conditions and any need for maintenance are recorded, and the appropriate maintenance activities and BMPs are identified and implemented.

Sediment removal and other maintenance activities have only been conducted at Ponds 13B, 17, 30, 31A and 31B. These activities are required approximately every 1–2 years, depending on location. Maintenance at each location is typically completed within 3–4 days by two to four workers. Equipment typically includes an excavator, dozer, pumps, vactor, and haul truck. Excavated material is stored in existing on-site material storage areas, in accordance with BMPs in the site SWPPP, for later use during site reclamation. Sediment removal and other maintenance activities also would be conducted at the Yeager Yard catchment basin, which was constructed in 2020. Sediment removal and other maintenance activities have not previously been conducted at Pond 4A but may be required during the permit term. Both of these basins are lined.

In addition to conducting ongoing sediment removal, Covered Activities may include permanent lining of ponds (initially considered for Pond 30). Pond lining activities are anticipated to require equipment such as an excavator, a trencher, vactors, haul trucks, pumps, and other specialized equipment, as needed. If initiated, pond lining is expected to be completed in approximately 1 month.

2.2.2.2 Erosion Control

Erosion control measures (e.g., silt fence, berms, water bars, check dams, etc.) are monitored before and after every storm event during the wet season and monthly during the dry months, by visual observation and field investigation. Soil and slope conditions are inspected to identify significant new erosion, including rills and soil loss. The conditions and any need for maintenance are recorded, and the appropriate maintenance activities are identified and implemented.

Erosion control activities are typically required before the start of the wet season and on an as-needed basis, depending on rainfall. Erosion control at a given location is typically completed within 1–3 days, by two to four workers. Equipment typically includes an excavator, grader, dozer, and haul truck. If material removal is necessary, excavated material is stored in existing material storage areas for later use during site reclamation; if material import is necessary, it is typically obtained from local outlets.

2.2.2.3 Material Transport and Storage

Material used for aggregate production is stored in the area known as the "Rock Pile Area," near Pond 13B (*see* Figure 3c). Although Permanente Creek is culverted immediately adjacent to the Rock Pile, the areas upstream and downstream of this location support open water creek habitat. The Rock Pile is accessed to store and/or transport material; thus, vehicle and equipment operation occurs in this area.

2.2.2.4 Vehicle Travel, Equipment Operation, Road and Berm Maintenance

Activities on the Permanente site generate traffic associated with customer haul trucks, equipment movement, delivery trucks carrying materials and supplies, employee cars and light trucks, and contractor vehicles. Customer haul trucks travel to and from the Cement Plant, Rock Plant, and Rock Pile areas, and other onsite traffic travels to and from various areas of the site. Vehicle travel is limited to the existing road network and other established access routes. One of the primary access routes is parallel to Permanente Creek. In addition to regular traffic, Lehigh conducts road, check dam, and berm maintenance along this route.

2.2.2.5 Vegetation Maintenance

Vegetation maintenance activities on the site include trimming of trees, removal of dead vegetation and, where necessary, hydroseeding. These activities occur on as-needed basis at least once per year, consistent with the site's SWPPP and approved Reclamation Plan. These activities require chain saws and excavation for dead tree removal, if needed. In addition, vegetation trimming and cutting is required along existing roadways to maintain safe visibility conditions for vehicle and equipment travel. Typically, these activities require 2 to 4 workers and take 5–7 days, depending on the location.

2.2.2.6 Water Quality Monitoring Activities

A variety of water quality monitoring activities occur at the facility pursuant to the 2012 Reclamation Plan amendment issued by Santa Clara County and operational plans prepared pursuant to permits issued by the San Francisco Regional Water Quality Control Board, including NPDES Permit No. CA0030210, Order No. R2-2019-0024, and Waste Discharge Requirements Order No. R2-2018-0028 (*e.g.*, Spill Prevention Control Plan [SPCP], Operations & Maintenance Plan, and SWPPP). This monitoring can include, but is not limited to, visual observations, borings/soil sampling, and sampling of seeps, storm water, storm water capture/sedimentation basins, and Pond 14.

2.2.2.7 Pond 14 Monitoring and Habitat Management Activities

Habitat conditions at Pond 14 will be monitored as part of this HCP to confirm the pond continues to provide suitable habitat for California red-legged frog and to serve as a suitable release site for individuals that require removal from maintenance areas. An annual monitoring survey of the pond will be conducted to assess presence of bullfrog (*Rana catesbeiana*), predatory fish, and crayfish. Attempt will be made to remove as many predatory individuals as is practicable, based on site conditions. Emergent vegetation extent and characteristics of open water habitat will also be monitored. If current habitat conditions (described below in Section 3.2.1 and based on the most recent field survey of Pond 14 conducted in April 2021) deteriorate to an extent that may threaten continued suitability of Pond 14 as breeding habitat for California red-legged frog, appropriate habitat management activities will be conducted (e.g., excessive emergent vegetation and sediment removal, weir repairs, etc.).

3. Physical and Biological Resources

3.1 Physical Environment

The permit area depicted in Figure 2 is located on the eastern slope of the Santa Cruz Mountains, within the Permanente Creek-Frontal San Francisco Bay Estuaries watershed. Mean annual precipitation in the vicinity is approximately 28 inches (Santa Clara County 2007). Permanente Creek headwaters are located approximately 2 miles west of the permit area. Most portions of the permit area are along Permanente Creek, which generally slopes gradually from west to east. Several components of the permit area are located within the active quarry and material storage areas north of and upslope from the creek. Elevations in the permit area range from approximately 950 feet above mean sea level upslope of Permanente Creek at the upstream end to approximately 450 feet at the downstream end.

Much of the larger region surrounding the Permanente property is undeveloped and includes natural areas such as the Rancho San Antonio Open Space to the north. Areas downstream of the permit area are highly urbanized. Permanente Creek drains to the east, through the cities of Los Altos and Mountain View, before discharging to the San Francisco Bay at Shoreline Park. The downstream hydrology of the Permanente Creek watershed has been substantially altered for flood protection purposes.

3.2 Biological Resources

Information on biological resources in the permit area is based on extensive existing information compiled to support various Lehigh needs, primarily the 2012 Reclamation Plan, for which numerous surveys and extensive habitat mapping efforts were conducted. Additional surveys have been conducted more recently by GEI Consultants, Inc. (GEI) for this HCP and other specific Lehigh projects and maintenance needs.

3.2.1 Land Cover Types

Figures 4a–4d show land cover types present in the permit area, and **Table 1** indicates the amount of each type in the permit area. The figures, associated acreages, and land cover type descriptions are based on information compiled for the 2012 Reclamation Plan (WRA 2011) and updated by more recent GEI field surveys and interpretation of aerial imagery taken by Lehigh in 2019. The most recent GEI field survey was a habitat assessment conducted at Pond 14 in April 2021.

Active Quarry. Areas identified as active quarry are currently disturbed (e.g., roadways and facility areas) or have in the past been disturbed by quarry activities or access roads. Generally, plant cover in these areas is absent or very sparse due to the lack of topsoil, but some locations support limited cover of weedy plants, such as yellow star thistle (*Centaurea solstitialis*), slender wild oat (*Avena barbata*), sweet fennel (*Foeniculum vulgare*), and field mustard (*Brassica rapa*).

Ponds. As indicated under the description of Covered Activities, storm water capture/sedimentation basins in the permit area are referred to as ponds. These basins were excavated in uplands, receive storm water runoff from areas of quarry operation, are used to settle out suspended solids from runoff, and are actively managed as part of ongoing quarry operation. Seven storm water capture/sedimentation basins are present in the permit area (Ponds 4A, 13B, 17, 30, 31A, and 31B and Yeager Yard catchment basin).

Table 1. Land Cover Types and Acreage in the Permit Area

Land Cover Type	Acres in Permit Area
Active quarry	7.59
Storm water capture/sedimentation basin	0.77
Freshwater marsh (Pond 14)	0.13
Open water (Pond 14)	0.08
Ruderal herbaceous grassland	0.81
Northern mixed chaparral	0.42
Willow riparian forest and scrub	0.26
White alder riparian forest	0.10
Oak woodlands and forest	0.05
Mixed scrub	<0.00
Total	**10.21**

Source: WRA 2011, compiled and updated by GEI Consultants, Inc. in 2021

Freshwater marsh and open water (Pond 14). Pond 14 (at the downstream end of the permit area) is not maintained as a storm water capture/sedimentation basin but is included in the permit area because California red-legged frogs removed from maintenance areas elsewhere in the permit area would be released at Pond 14. This pond includes an area of open water surrounded by emergent freshwater marsh vegetation dominated by narrow-leafed cattail (*Typha angustifolia*). During the April 2021 survey, the open water was approximately 3-5 feet deep and emergent vegetation accounted for an estimated 45 percent of the total pond area.

Ruderal herbaceous grassland. This vegetation community includes previously disturbed and/or reclaimed areas that have been inactive long enough to recruit a plant community dominated by herbaceous weeds and nonnative grasses. Within the permit area, these grasslands occur adjacent to some roadways and ponds. Species typical of this community on the Permanente property include Italian thistle (*Carduus pycnocephalus*), field mustard, lupine (*Lupinus* sp.), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), yellow star thistle, and slender wild oat.

Northern mixed chaparral. This shrub community forms dense, often impenetrable stands dominated by chamise (*Adenostoma fasciculatum*), scrub oak (*Quercus berberidifolia*), various manzanitas (*Arctostaphylos* spp.), and various members of the genus *Ceanothus*. Within the permit area, this community is limited to two patches on the disturbed hillside above Pond 13B.

Willow riparian forest and scrub. This riparian community is dominated by various willow species, typically arroyo willow (*Salix lasiolepis*), red willow (*S. laevigata*), and black willow (*S. gooddingii*). Associated understory species include stinging nettle (*Urtica dioica*), poison oak, and California blackberry (*Rubus ursinus*). Willow riparian occurs adjacent to Pond 14 and in an isolated patch in the eastern portion of the permit area that is surrounded by roadways and active quarry.

White alder riparian forest. This is the primary forest type along the portion of Permanente Creek in and adjacent to the permit area. It is dominated by white alder (*Alnus rhombifolia*), with abundant willow (*Salix* sp.), poison oak (*Toxicodendron diversilobum*), California wild rose (*Rosa californica*), and snowberry (*Symphoricarpos mollis*) in the understory.

Oak Woodlands and Forests. On the Permanente property, coast live oak (*Quercus agrifolia*) and California bay (*Umbellularia californica*) are dominant species in these woodland and forest areas. Secondary tree species include occasional big leaf maple (*Acer macrophyllum*) and Pacific madrone (*Arbutus menziesii*), and shrubs such as poison oak, California blackberry, and creeping snowberry are prevalent. One small area of oak woodland/forest occurs in the permit area, adjacent to Pond 17.

Mixed scrub. Mixed scrub on the Permanente property is characterized by dense to moderately open stands dominated by coyote brush (*Baccharis pilularis*), California sagebrush (*Artemisia californica*), and California buckwheat (*Eriogonum fasciculatum*), with little to no understory vegetation. Within the permit area, mixed scrub is limited to a very small area near Pond 17.

3.2.2 Covered Species – California Red-legged Frog

3.2.2.1 Geographic Distribution

California red-legged frog historically ranged from Redding and Marin County in the north, south to northern Baja California, Mexico, and essentially throughout lowland California (Jennings and Hayes 1994). However, its range has been reduced primarily to isolated drainages within the Coast Ranges and near-coastal foothills. The species once occurred in 46 counties but is now only known to occur in 22 counties, with the greatest concentrations in Monterey, San Luis Obispo, and Santa Barbara Counties (USFWS 2002). A map of the current range of California red-legged frog is available at https://ecos.fws.gov/ecp/species/2891.

3.2.2.2 Life History and Habitat Requirements

California red-legged frog occurs at elevations between sea level and 5,000 feet. Adults are highly aquatic and are most active at night (USFWS 2002). California red-legged frog also uses terrestrial habitat, especially after precipitation events, for nonmigratory movements into adjacent upland habitats and migratory overland movements to breeding sites.

Male and female California red-legged frogs typically reach sexual maturity at 2 years and 3 years of age, respectively. Breeding typically begins between November and mid-December and continues through April but is dictated by winter rainfall. At breeding sites, small groups (e.g., three to seven individuals) of males call to attract females. Eggs are fertilized by the male while the female deposits the egg mass (Jennings and Hayes 1994). Larvae typically hatch in 6–22 days, and metamorphosis is usually completed in 4–5 months (Jennings and Hayes 1994; Bobzien et al. 2000). This is the average amount of time needed for egg, larvae, and tadpole development and metamorphosis to the point that juveniles are capable of surviving in upland habitats (USFWS 2010). Newly metamorphosed frogs tend to inhabit warm, shallow margins of ponds and streams near breeding habitat from July through September, then disperse away from breeding habitat during warm rain events.

Typical habitat characteristics include water depth of at least 2.5 feet, largely intact emergent or shoreline vegetation, and absence of competitors/predators such as bullfrogs and largemouth bass (*Micropterus salmoides*) (Hayes and Jennings 1988). California red-legged frog can use a wide variety of aquatic habitat, including temporary pools and streams and stock ponds, when optimal conditions are absent. However, permanent aquatic habitat is essential to the survival of local populations, and aquatic breeding habitat must hold water for a minimum of 20 weeks in most years.

Aquatic non-breeding habitat may or may not hold water long enough for California red-legged frog to complete its aquatic life cycle, but this habitat provides shelter, foraging, predator avoidance, and

aquatic dispersal for juveniles and adults. Non-breeding aquatic habitat allows individuals to survive drought periods and disperse to aquatic breeding habitat (USFWS 2010). These habitats include plunge pools within intermittent creeks, seeps, quiet water refugia during high water flows, and springs of sufficient flow to withstand the summer dry period. California red-legged frog also can use large cracks in the bottom of dried ponds as refugia to maintain moisture and avoid exposure (Alvarez 2004).

California red-legged frog typically uses upland habitat within 300 feet of occupied aquatic and riparian habitat. Suitable uplands can include grassland, woodland, and other vegetation that provides shelter, forage, and predator avoidance for juvenile and adult frogs. Key characteristics of upland habitat include shade, moisture, cool temperatures, prey base, and areas for predator avoidance. Important structural features can include boulders, rocks, organic debris (e.g., downed trees, logs, and moist leaf litter), and small mammal burrows (USFWS 2010).

Dispersal habitat for California red-legged frog includes accessible uplands that allow for movement between occupied areas. Dispersal habitat can include a variety of natural and altered habitats that do not contain barriers to dispersal, such as moderate to high density urban or industrial developments, large reservoirs, and heavily traveled roads without bridges or culverts (USFWS 2010). Typical California red-legged frog dispersal distance is approximately 0.7 mile. However, individuals traveling along water courses can exceed these distances. Overland movements of several hundred meters and up to 1 mile have been documented during the winter-spring wet season in northern California (Bulger et al. 2003, Fellers and Kleeman 2007), and movements of 2,860 meters (1.8 miles) have been documented along the central California coast (Rathbun and Schneider 2001).

3.2.2.3 Threats

California red-legged frog is threatened by degradation and loss of habitat to agriculture, urbanization, mining, overgrazing, recreation, timber harvesting, nonnative-plant invasions, impoundments, water diversions, degraded water quality, pesticide use, and introduced predators (USFWS 2002). At the Permanente site, significant improvements to water quality have occurred over the past decade and minimized threats to the California red-legged frog from site operation. Operation of state-of-the art treatment facilities, fully online since 2017, ensure that receiving waters (*e.g.*, Permanente Creek) do not contain elevated levels of selenium. Routine maintenance of most storm water capture/sedimentation basins, including removal of accumulated sediment each year, performed in accordance with the site's Regional Water Quality Control-Board approved Operations & Maintenance Plan, also reduces risk of elevated selenium exposure to the species.

3.2.2.4 Status in the Permit Area

California red-legged frog has been documented at several locations on the Permanente property during habitat assessments, focused surveys, and monitoring conducted from 1997 through 2021; protocol-level surveys conducted in 2006 and 2007 (Jennings 2006, 2007); and incidental observations while conducting surveys unrelated to the species. **Figures 5a–5d** show suitable aquatic and upland habitat in the permit area and suitable aquatic habitat adjacent to the permit area.

Most of the permit area provides poor- to marginal-quality habitat for California red-legged frog, and most of the potential for Covered Activities to result in take of California red-legged frog is associated with the relatively low potential for individuals to wander into unsuitable or lower-quality habitat in portions of the permit area where ongoing routine operation and maintenance activities occur.

California red-legged frog has only been detected in two active storm water capture/sedimentation basins in the permit area, Pond 30 and Pond 31B, both of which may provide potentially suitable breeding habitat in years of high late-season rainfall. California red-legged frogs have also been observed in Ponds 9 and 14 and in the downstream portions of Permanente Creek; no facility maintenance activities occur in these ponds. Breeding has been documented in Pond 14 (WRA 2011), and 22 California red-legged frogs were relocated to this pond during emergency culvert cleanout activities in Permanente Creek conducted in 2017. (Additional culvert cleanout activities could occur during the permit term. However, these activities would occur outside the permit area and would be covered under Section 7 consultation with the U.S. Army Corps of Engineers [USACE].)

Pond 14 is adjacent to but not within the Permanente Creek channel. Three culverts pass flow through a road embankment upstream of Pond 14; one culvert conveys Permanente Creek flow and the other two culverts convey flow to the pond. A concrete weir with slide gate at the downstream end of Pond 14 serves to retain flow that enters the pond. At the time of the April 2021 survey, the culverts to Pond 14 and the weir/slide gate were in good condition. Upland vegetation surrounding Pond 14 is dominated by red willow and coyote brush. Previous hydrology analysis indicated Pond 14 is expected to fill in an average rainfall year and retain approximately 3-4 feet of water at least into August (Chang 2010), sufficient to sustain California red-legged frog young through development.

Upstream of Pond 9, California red-legged frog breeding habitat is largely absent from Permanente Creek, because of lack of deep pools. The creek may, however, provide aquatic habitat when seasonal flows are present. In addition, the Permanente Creek corridor supports riparian vegetation that may function as dispersal habitat and provide upland refugia. The Permanente Creek Restoration Project would overlap some areas in this upstream portion of the permit area and is expected to be implemented during the permit term. The restoration project would remove rock material (e.g., riprap, soil, debris) from within and adjacent to the creek, restore adjacent floodplain areas, and contour the stream to recreate meanders and match elevation controls created by bedrock. Santa Clara County has initiated environmental review of the restoration project, but it is not known when all approvals may be in place and project implementation could begin. (The restoration project is covered under Section 7 consultation with USACE, which is currently ongoing.)

4. Assessment of Effects

4.1 Potential Effects on California Red-legged Frog

California red-legged frog could occur in suitable aquatic and upland habitat in the permit area. As described below in Section 5.3, "Conservation Measures," individuals found in maintenance areas and in danger from maintenance activities will be captured and relocated to Pond 14. If individuals remain in the work areas when Covered Activities occur, they could be displaced, injured, or killed by vehicle movement, equipment operation, and other direct disturbances related to Covered Activities. For example, in 2018, an individual was found by a monitoring biologist during sediment removal from Pond 31B and was relocated to Pond 14 due to imminent danger from sediment maintenance activities. Based on observations made during biological monitoring of past maintenance activities conducted in Permanente Creek, California red-legged frogs in habitat adjacent to areas in which Covered Activities occur are not anticipated to be displaced by noise, visual disturbance, or vibrations associated with Covered Activities. During culvert cleanout conducted in 2017, individuals in adjacent areas were monitored to determine if capture and relocation was warranted; these individuals did not show evidence of behavioral disruption or attempt to move away from the work areas.

Table 2 summarizes the amount of each category of California red-legged frog habitat in the permit area that would be affected by Covered Activities.

Table 2. Effects to California Red-legged Frog Habitat in the Permit Area

Habitat Type	Acres Affected	
	Temporary[1]	Permanent[2]
Breeding	0.21[3]	0.10
Aquatic non-breeding	0.67	-
Upland	1.64[3]	-
Total	**2.52**	**0.10**

[1] Temporary effects on aquatic non-breeding and upland habitat could recur approximately every 1-2 years, depending on maintenance needs; temporary effects on breeding habitat would be limited to potential infrequent (approximately every 3-5 years) habitat management activities and annual predator monitoring activities at Pond 14.
[2] Includes 0.07 acre at Pond 30 that may be permanently converted to non-breeding habitat and 0.03 acre at Pond 31B that would be repeatedly cleared of sediment and vegetation.
[3] Includes 0.21 acre of breeding habitat and 0.21 acre of adjacent upland habitat at Pond 14.

As shown in Table 2, habitat effects associated with the Covered Activities would primarily be temporary and would be limited to the time during which Covered Activities occur at a given location. These temporary effects would result from Covered Activities, such as periodically removing accumulated sediment from existing storm water capture/sedimentation basins, trimming riparian vegetation and cutting grassland vegetation adjacent to existing roadways, implementing erosion control measures in upland habitats, and monitoring and potential predator removal and habitat management at Pond 14. Permanent effects on potential breeding habitat include potential lining of the 0.07-acre Pond 30. If lined, this pond would no longer provide potential breeding habitat for California red-legged frog, but it would provide non-breeding aquatic habitat that would be affected by ongoing activities, such as

those listed above. Repeated clearing of sediment and vegetation from the 0.03-acre Pond 31B is also considered a permanent effect on potential breeding habitat. There also is limited potential for California red-legged frog to be injured or killed by Covered Activities that do not affect suitable habitat, such as material transport and storage, vehicle travel, and equipment use on existing roadways adjacent to Permanente Creek. Though unlikely, it is possible for frogs to venture onto roadways and into material storage areas near aquatic habitat.

Implementing the Covered Activities also has beneficial effects on California red-legged frogs and their habitat. Without ongoing erosion and sedimentation control, onsite habitat quality would likely be degraded, potentially adversely affecting the local California red-legged frog population. In addition, Covered Activities at Pond 14 will ensure the pond continues to provide suitable breeding habitat.

The conservation strategy that would be implemented as part of this HCP is comprised of operational BMPs intended to avoid, minimize, or mitigate the impacts of other Covered Activities on the California red-legged frog, which do not implicate independent adverse effects (e.g., imposing a 20 mph speed limit within the permit area, avoiding ground-disturbing activities during and directly after rain events, etc.). Consequently, the conservation strategy is not expected to have any adverse effects, and rather, would benefit California red-legged frog as described in the following sections of this HCP.

4.2 Anticipated Take of California Red-legged Frog

Potential take of California red-legged frog that could result from implementing Covered Activities is anticipated to primarily include capture and relocation and direct injury or mortality. Effects on California red-legged frog habitat in the permit area would generally be minor in extent and intensity and would not substantially diminish the already marginal habitat quality. However, the potential conversion of 0.07 acre of potential breeding habitat in Pond 30 to non-breeding aquatic habitat and periodic temporary disturbance of 0.03 acre of potential breeding habitat in Pond 31B, 0.67 acre of non-breeding aquatic habitat, and 1.64 acre of upland habitat could result in harm if habitat modification significantly impairs behavioral patterns such as breeding, feeding, or sheltering. Maintenance activities in these habitat areas, as well as potential predator control and habitat management in 0.21 acre of breeding habitat at Pond 14, could require capture of California red-legged frog, if an individual is present in a work area when Covered Activities are conducted and in danger of injury or mortality. With implementation of the conservation measures described in Section 5, California red-legged frog is unlikely to be present in the permit area and directly injured or killed by maintenance activities.

Because breeding has not been documented in any of the storm water capture/sedimentation basins in the permit area, take of eggs or larvae is very unlikely to occur. Implementing avoidance and minimizations described below in Section 5.3, “Conservation Measures,” would further reduce potential for take of eggs or larvae, because sediment removal would be conducted when basins are dry. Implementing avoidance and minimization measures also would reduce potential for take of subadult and adult California red-legged frogs because ground-disturbing Covered Activities would occur in the dry season, to the maximum extent practicable, and surveys for and relocation of California red-legged frogs would be conducted before work begins in suitable aquatic habitat and before ground disturbance begins in suitable upland habitat. Consequently, implementing the Covered Activities is unlikely to have any detrimental effect on the California red-legged frog population in the region or throughout its range.

Because direct take would be minimized by implementing avoidance and minimization measures, the Covered Activities are not expected to cause the death or injury of more than two individuals per year on average. Therefore, Lehigh is requesting coverage for death or injury of up to 40 California red-legged

frogs over the requested 20-year permit term. In addition, it is estimated up to an average of 10 individuals may require relocation to Pond 14 each year during routine operation and maintenance activities of existing facilities. California red-legged frogs also could be captured during predator monitoring and potential predator removal and potential habitat management activities at Pond 14. It is difficult to estimate the number of individuals that may be encountered at Pond 14, but it could be 10-20 individuals per year, depending on the activities that are implemented. However, potential to encounter California red-legged frogs during Pond 14 monitoring and management activities would be minimized by implementing conservation measures described in Section 5.

4.3 Cumulative Effects on California Red-legged Frog

Under the ESA, cumulative effects include future state or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation (50 CFR 402.02). Most of the reasonably foreseeable future activities likely to be implemented on the Permanente property that could affect California-red-legged frog include activities in Permanente Creek that would require a permit from USACE for impacts to waters of the United States and would therefore require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the ESA. These include culvert clean-out activities, for which take authorization has been recently provided, and the creek restoration project, for which Section 7 consultation is ongoing but timing of project implementation is unknown.

The only reasonably foreseeable future activity that Lehigh proposes to implement but is not anticipated to require federal involvement is amending the 2012 reclamation plan and obtaining related entitlements for the Rock Plant Reserve. The proposed expansion of activities into the Rock Plant Reserve area would include mining and reclamation of approximately 30 acres south of Permanente Creek and outside the permit area.

The Rock Plant Reserve area is dominated by oak woodland/forest and poison oak scrub and includes three small ephemeral drainages on the steep, north-facing slope and a small isolated seasonal wetland near the top of the ridge. In years of very high rainfall, the isolated seasonal wetland may remain ponded for extended periods. However, this wetland provides poor-quality habitat for California red-legged frog, compared to known and potential breeding ponds in the Permanente Creek canyon, and is not contiguous with areas known to support California red-legged frog. In addition, it was previously determined that this pond lacks aquatic and upland habitat for California red-legged frog and that the species is absent from the pond and its vicinity (Jennings 2010).

The steep ephemeral drainages in the Rock Plant Reserve area provide poor habitat for California red-legged frog and only support ephemeral aquatic habitat for very brief periods during and immediately following heavy rainfall. Upland and ephemeral aquatic habitat in the Rock Plant Reserve area is approximately 500 feet from Permanente Creek at its closest point. For these reasons, California red-legged frog is unlikely to occur in the Rock Plant Reserve area. In addition, any approved mining and reclamation activities would be implemented in accordance with applicable reclamation plan requirements, which include conducting grading in areas of potential aquatic habitat for California red-legged frog during the dry season and conducting pre-construction surveys before activities in areas of suitable California red-legged frog habitat. Therefore, potential for injury or death of California red-legged frog to result from implementing the proposed mining and reclamation activities is very low.

Mining and reclamation of the Rock Plant Reserve would not result in adverse effects on California red-legged frog from potential exposure to selenium or other metals because groundwater seepage and storm

water runoff would be managed and treated in the existing water treatment system (*see* description of the system in Section 3.2.2.3). This water would be returned to Permanente Creek only after being treated, thereby eliminating the potential for selenium-related water quality effects on aquatic organisms. Therefore, the Rock Plant Reserve project would not result in cumulative effects on California red-legged frog, when considered in combination with the Covered Activities.

4.4 Anticipated Effects of the Take of California Red-legged Frog

The anticipated level of take that would result from implementing Covered Activities over the 20-year permit period is expected to have negligible effects on the overall viability of the local California red-legged frog population and the species as a whole. The high number (22) of California red-legged frogs encountered and relocated during Permanente Creek culvert cleanout activities conducted in 2017 suggests the Lehigh property supports a healthy population of the species. Potential injury or death of an average of two individuals per year and potential relocation of an average of 10 individuals per year are unlikely to have a substantial adverse effect on the local population or the population throughout its range. In addition, California red-legged frog recovery efforts underway elsewhere within the species' range would not be hindered.

5. Conservation Strategy

This conservation strategy for ongoing operation and maintenance of existing Permanente facilities in the permit area includes the following three types of conservation measures:

- impact avoidance and minimization measures
- compensation for permanent habitat loss and recurring disturbance
- monitoring, reporting, and adaptive management

This conservation strategy is designed to avoid, minimize, and mitigate impacts of the Covered Activities on California red-legged frog and achieve the biological objectives of this HCP. The conservation strategy is based on the ecological requirements of California red-legged frog and the level of impact anticipated to result from implementing the Covered Activities. Lehigh will be responsible for proper implementation of all avoidance and minimization measures in this conservation strategy and will educate and direct their maintenance staff and contractors accordingly. Lehigh also will monitor effectiveness of these measures and consider adjustments via the adaptive management process, if warranted. Compensation for unavoidable impacts will be provided through purchase of credits at the Ohlone West Conservation Bank in southern Alameda County, California.

5.1 Biological Goals and Objectives

Section 10(a)(2)(A) of the ESA requires that an HCP specify the measures that the permittee will take to minimize and mitigate to the maximum extent practicable the impacts of the taking of any federally listed animal species as a result of activities addressed by the HCP. The Service also requires that HCPs establish biological goals and objectives to be achieved by implementing the conservation program. Goals and objectives listed below were developed based on California red-legged frog ecology and the potential impacts that may occur as a result of implementing activities covered by this HCP. The following biological goals and objectives include on-site measures that will minimize take of California red-legged frog within the permit area and off-site mitigation that will protect habitat with high conversation value for the species in perpetuity.

Goal 1: Avoid and minimize, to the extent feasible, take of California red-legged frog resulting from Covered Activities.

Objective 1.1 – Conduct sediment removal and non-critical erosion repair and vegetation maintenance in suitable aquatic habitat for California red-legged frog during the dry season, during the permit term.

Objective 1.2 – Minimize ground-disturbing work adjacent to Permanente Creek, off-channel ponds and drainages, and storm water capture/sedimentation basins where California red-legged frog is likely to take refuge during the dry season, during the permit term.

Objective 1.3 – Conduct maintenance activities only as often as necessary to comply with applicable regulatory requirements and prevent failures that could potentially lead to facility damage or closure or endangerment of life or property, during the permit term.

Objective 1.4 – Promote continued suitability of Pond 14 as a release site for relocated California red-legged frog.

Goal 2: Provide compensatory mitigation to offset impacts.

Objective 2.1 – Purchase 6.6 acres of California red-legged frog habitat credits from the Ohlone West Conservation Bank as compensatory mitigation for permanent and repeated temporary impacts on 2.2 acres of suitable aquatic and upland habitat for California red-legged frog.

5.2 Conservation Measures

5.2.1 Avoidance and Minimization Measures

The following BMPs and species-specific measures will be implemented to avoid and minimize impacts on California red-legged frog to the maximum extent practicable.

5.2.1.1 Best Management Practices

1. Movement and parking of vehicles and equipment used for Covered Activities will be confined to existing roads, developed areas, and other previously disturbed areas. Vehicles and equipment will be subject to a speed limit of 20 miles per hour.

2. Erosion control, pollution prevention, and dust control measures will be implemented to minimize impacts from Covered Activities. These measures will include, at a minimum:

    a. Existing erosion control measures in the permit area will be implemented with materials that do not entangle or block escape or dispersal routes of California red-legged frog.

    b. Vehicles and equipment used for Covered Activities will be regularly maintained to prevent leaks of fuels, lubricants, or other fluids, and fueling and maintenance will be conducted at least 100 feet from aquatic habitat, except at established vehicle fueling and maintenance facilities. Precautions will be taken to prevent discharge of pollutants from vehicle or equipment cleaning into any storm drains or aquatic habitat, and all existing SPCP and SWPPP requirements will be implemented. Spill containment kits will be maintained onsite at all times during Covered Activities, and personnel will be trained in their appropriate use.

    c. Dust control measures will be implemented, if necessary, to control dust associated with permitted activities. Such measures will be implemented in accordance with the existing dust control plan.

    d. Insecticide, rodenticide, and herbicide use will be prohibited where there is potential for these agents to enter suitable aquatic or upland habitat for California red-legged frog.

3. Any material generated by Covered Activities that may be temporarily stored, or ultimately permanently placed, will be done so in accordance with protocols established by, or in accordance with, the facility Waste Discharge Requirements, San Francisco Regional Water Quality Control Board Order No. R2-2018-0028, or other General/Individual Order issued by the Regional Water Board to govern the use of suitable soils, within previously disturbed areas that do not provide suitable habitat for California red-legged frog and are a minimum of 150 feet from suitable aquatic habitat for the species. Material generated by the Covered Activities will be evaluated in accordance with such protocols; if on-site storage or use is not determined to be appropriate, Lehigh will transport the material to a permitted disposal site.

5.2.1.2 Species-specific Measures

1. Sediment removal and other Covered Activities in storm water capture/sedimentation basins (*e.g.*, Ponds 13B, 30) that provide suitable aquatic habitat for California red-legged frog will only occur when the basins are dry. Covered Activities in suitable breeding habitat for California red-legged frog (*e.g.*, Pond 14) will be conducted between September 1 and October 31, with the exception of monitoring requirements required by a regulatory agency or applicable permits, to avoid potential impacts on California red-legged frog breeding activity, egg masses, and tadpoles.

2. To the maximum extent practicable, ground-disturbing Covered Activities in suitable upland habitat for California red-legged frog will not occur between November 1 and March 31, and Covered Activities will not occur during rain events or within 24 hours following a rain event.

3. To the maximum extent practicable, ground-disturbing Covered Activities in suitable upland habitat for California red-legged frog and all Covered Activities in suitable aquatic habitat for the species will be limited to the period from 30 minutes after sunrise to 30 minutes before sunset. Except when necessary for driver or pedestrian safety, artificial lighting will be prohibited during the hours of darkness.

4. Service-approved biologists and monitors adequately trained by a Service-approved biologist will be identified to implement California red-legged frog avoidance and minimization measures described below. Qualifications of the biologists and monitors will be submitted to the Service for review and written approval at least 14 calendar days before a biologist or monitor conducts activities under this HCP for the first time. Service-approved biologists and monitors will keep a copy of these measures in their possession when onsite.

5. No more than 24 hours before Covered Activities that require work in suitable aquatic habitat or ground disturbance in suitable upland habitat for California red-legged frog (as identified in this HCP) begin, a preconstruction survey for California red-legged frog will be conducted by a Service-approved biologist or monitor in the area where such activities will occur. The survey will consist of walking areas that will be subject to ground disturbance and adjacent to aquatic habitat that will be disturbed to investigate possible presence of the species. The Service-approved biologist or monitor will investigate all potential areas that could be used by the California red-legged frog for feeding, breeding, sheltering, movement, and other essential behaviors before work in aquatic habitat or ground-disturbing activities begin.

6. A Service-approved biologist or monitor will be present onsite during Covered Activities that require work in suitable aquatic habitat or ground disturbance in suitable upland habitat for California red-legged frog, as identified in this HCP.

7. Service-approved biologists and monitors will have the authority to freely communicate at any time with personnel conducting Covered Activities, any other persons otherwise associated with Covered Activities, and the Service. Service-approved biologists and monitors will have oversight for implementing conservation measures in this HCP, and, through Lehigh, will have the authority and responsibility to stop Covered Activities if any of the requirements are not being fulfilled.

8. A Service-approved biologist or monitor will provide training for personnel conducting Covered Activities in suitable aquatic habitat or ground-disturbing Covered Activities in suitable upland habitat for California red-legged frog. The training presentation will describe California red-legged-frog identification and ecology, including habitat identification; applicable avoidance and minimization measures; legal protection of the species; and other relevant issues. All attendees will provide their signature, printed name, company, and email address or telephone number. The sign-in sheet will be included in an annual report to the Service. Training will be conducted annually to ensure all new employees are appropriately trained.

9. If a maintenance area is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh no larger than 5 millimeters to prevent California red-legged frogs from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during Covered Activities. Upon completion of Covered Activities, any barriers to flow will be removed in a manner that allows flow to resume with the least disturbance to the substrate.

10. If Covered Activities require excavation of trenches or pits 1 foot deep or deeper that will be left unfilled for more than 48 hours, such trenches and pits will be securely covered with boards or other material. If this is not possible, wooden ramps or other structures of suitable surface that provide adequate footing for the California red-legged frog will be placed in the trench or pit to allow frogs to escape. Auger holes or fence post holes greater than 1.0 inch in diameter will be immediately filled or securely covered. A Service-approved biologist or monitor will inspect relevant trenches, pits, or holes before they are filled to ensure there are no California red-legged frogs in them. The trench, pit, or hole also will be examined by a Service-approved biologist or monitor at least 1 hour before beginning work and no more than 1 hour after work has ceased each day to determine if individuals have become trapped. If the escape ramps fail to allow the animal to escape, a Service-approved biologist will capture and relocate the individual(s) in accordance with the following measure.

11. If a California red-legged frog is encountered before or during Covered Activities: (1) the animal will not be disturbed if it is not in danger; or (2) the animal will be moved to a secure location if it is in any danger, in accordance with the following procedures:

    a. When a California red-legged frog is encountered, all activities that have potential to result in disturbance, injury, or death of the individual will be immediately halted. A Service-approved biologist will then assess the situation in order to select a course of action that will avoid or minimize adverse effects to the animal. To the maximum extent possible, contact

with the frog will be avoided and it will be allowed to move out of the potentially hazardous situation to a safe area of suitable habitat on its own volition.

b. California red-legged frog adults, subadults, or juveniles that are in danger will be captured and released by a Service-approved biologist at Pond 14. If tadpoles or eggs are found, activities will be delayed until eggs and/or young have developed to at least the juvenile stage and can be more effectively and safely relocated, if necessary. Only a Service-approved biologist will engage in capture, release, and relocation activities to ensure appropriate precautions are taken for California red-legged frog safety.

c. The Service-approved biologist will limit the duration of the handling and captivity of California red-legged frog to the minimum amount of time necessary to complete relocation. If an individual must be held in captivity, it will be kept in a cool, dark, moist, aerated environment, such as a clean and disinfected bucket or plastic container with a damp sponge. The container used for holding or transporting the individual will not contain any standing water.

d. California red-legged frog observations and capture and relocation details will be recorded and included in an annual report to the Service.

e. If a dead or injured California red-legged frog is found during Covered Activities, the Service-approved biologist will be notified immediately. If an injured California red-legged frog is found, the Service will be contacted immediately for guidance. If a dead California red-legged frog is found, it will be photographed and its location recorded, and the biologist will contact the Service to determine if the specimen must be transferred to the Service or another party for further evaluation and data development purposes .

12. Service-approved biologists and monitors will permanently remove any aquatic exotic wildlife species, such as bullfrogs, crayfish, and predatory fish from the permit area, including Pond 14, to the maximum extent practicable. To the maximum extent practicable, removal of such predators from California red-legged frog breeding habitat will occur outside the California red-legged frog breeding season.

13. Introduction and spread of amphibian diseases will be minimized by implementing the decontamination procedures in the “Declining Amphibian Populations Task Force Fieldwork Code of Practice” (https://www.fws.gov/ventura/docs/species/protocols/DAFTA.pdf).

14. If predator removal or habitat management activities (e.g., vegetation or sediment removal) are required at Pond 14, such activities will be conducted between September 1 and October 31 to minimize potential for impacts on California red-legged frog breeding activity, egg masses, and tadpoles. All applicable avoidance and minimization measures described above also will be implemented at Pond 14 during predator removal and/or habitat management activities.

15. Pre-construction surveys for monarch butterfly milkweed host plants and adult nectar plants will be conducted by a qualified biologist prior to Covered Activities that include vegetation maintenance (i.e., removal, trimming, or mowing). All milkweed (*Asclepias* spp.) plants within vegetation maintenance areas will be flagged and avoided. Monarch butterfly nectar plants (Xerces Society 2019) removed during Covered Activities will be replaced by planting appropriate native, flowering plants that are available to monarchs from January-April, as

appropriate for the project location at a suitable location on the Permanente property. Lehigh will make all practicable efforts to acquire and plant insecticide-free flowering plants at a 1:1 replacement ratio within 1 year of removal. If insecticide-free plants are not available for acquisition in the first year following removal, Lehigh will acquire and install insecticide-free flowering plants within 2 years of removal at a 2:1 ratio. Lehigh also may plant appropriate insecticide-free flowering plants on the Permanente property in advance of removal to ensure that no net loss of monarch nectar plants would result from the Covered Activities.

16. Pre-construction surveys for active migratory bird nests will be conducted, if Covered Activities occur during the nesting season. If preconstruction surveys determine that active nests are located close enough to work areas where Covered Activities are taking place to be disturbed by the Covered Activities, protective buffers will be established and implemented during Covered Activities until the nests are no longer active. A qualified biologist will determine the appropriate buffer for each nest; the buffer will depend on the type and intensity of Covered Activities, presence of visual buffers, and other variables that could affect susceptibility of the nest to disturbance. Behavior of the nesting birds will be monitored during Covered Activities to ensure the buffers are effective and to adjust buffers, as warranted. The buffers will be maintained until young have fledged or the nest is otherwise no longer active.

17. Water quality related monitoring of selenium in discharge and receiving waters will be carried out consistent with permits issued by the San Francisco Bay Regional Water Quality Control Board.

5.2.2 Compensation

Table 3 summarizes the extent of anticipated impacts on California red-legged frog habitat from the Covered Activities and the amount of mitigation habitat that will be provided to compensate for these impacts. Lehigh will compensate for permanent loss and repeated temporary impacts to 2.2 acres of suitable aquatic and upland habitat for California red-legged frog from ongoing routine operation and maintenance activities of existing facilities at a 3:1 ratio by purchasing 6.6 acres of California red-legged frog habitat credits at the Ohlone West Conservation Bank in Alameda County. Compensatory mitigation is not required for impacts at Pond 14 because monitoring and potential habitat management would be implemented for the sole purpose of maintaining the pond as California red-legged frog breeding habitat.

Table 3. Compensatory Mitigation for Effects to California Red-legged Frog Habitat in the Permit Area

Covered Activity	Impact Acres	Mitigation Ratio	Mitigation Acres
Routine operation and maintenance[1]	2.2	3:1	6.6
Pond 14 monitoring and habitat management[2]	0.42	0	0

[1] Includes ongoing recurring activities associated with storm water capture, erosion control, material transport and storage, vehicle/equipment operation, road and berm maintenance, and vegetation maintenance.
[2] Includes annual predator and habitat monitoring activities and potential predator removal and habitat management

5.3 Monitoring, Reporting, and Adaptive Management

Monitoring, reporting, and adaptive management of mitigation lands at Ohlone West Conservation Bank are the responsibility of Fletcher Conservation Lands, which owns and manages the bank. Lehigh is not responsible for any component of mitigation land monitoring, reporting, or adaptive management.

Lehigh responsibilities include monitoring to ensure compliance with avoidance and minimization measures and to determine if biological goals and objectives of this HCP are being met, tracking and reporting to the Service on Covered Activities and associated surveys and monitoring that are conducted, and evaluating potential need for adaptive management and implementing any necessary measures that are identified.

5.3.1 Monitoring

Monitoring is an integral part of the conservation strategy and adaptive management plan. The monitoring program is designed to fulfill four purposes:

- document impacts on California red-legged frog, including known take, resulting from Covered Activities (effects monitoring)
- verify compliance with the HCP and incidental take permit and fulfillment of the conservation strategy requirements (compliance monitoring)
- monitor and evaluate effectiveness of the conservation strategy (effectiveness monitoring), including the relocation program and suitability of Pond 14 as a relocation site
- evaluate progress toward meeting HCP biological goals and objectives (effectiveness monitoring)

Monitoring will primarily consist of implementing biological survey and monitoring requirements listed under the species-specific avoidance and minimization measures in Section 5.2.1.2. A Lehigh representative will verify that avoidance and minimization measures that do not require biological monitoring are implemented successfully.

Habitat conditions at Pond 14 will be monitored annually to confirm the pond continues to provide suitable breeding habitat for California red-legged frog (e.g., absence or low numbers of bullfrogs and other invasive predators; suitable hydroperiod; fully functional culverts and weir; sufficient open water habitat with emergent vegetation cover between approximately 20 and 50 percent; sufficient warm, sunny shallow water habitat for tadpole rearing). Monitoring will include surveys for predators such as bullfrog, nonnative fish, and crayfish. If such species are encountered, efforts will be implemented to remove as many individuals as practicable from the pond, via methods that are safe for California red-legged frog. Breeding habitat conditions also will be monitored by a qualified California red-legged frog biologist, and obvious changes in the extent of emergent vegetation cover and/or reduction in open water will be noted. If habitat conditions degrade to the extent that suitability of Pond 14 as California red-legged frog breeding habitat becomes threatened, potential remedial measures will be evaluated and implemented, as part of the adaptive management process described below.

5.3.2 Reporting

By February 28, following approval of this HCP, a report will be submitted to the Service for each year in which Covered Activities are conducted. The report will document Covered Activities and compliance with HCP requirements. Each report will include the following information:

- summary of Covered Activities, including locations, that occurred during the preceding calendar year (reporting year)
- summary of biological surveys and monitoring conducted for Covered Activities during the reporting year, including any observations of California red-legged frog, bullfrogs, and other invasive predators and species and number of predatory individuals removed
- description of impacts on California red-legged frog habitat that resulted from implementing Covered Activities during the reporting year
- representative photographs of areas affected by Covered Activities during the reporting year and the Pond 14 relocation site, with an annual summary of the habitat conditions at Pond 14 (e.g., presence of bullfrogs or other invasive predators; percent cover of emergent vegetation; availability of open water habitat; availability of warm, sunny shallow water habitat for California red-legged frog tadpole rearing; observations of any amphibians infected with diseases; observations of the various life stages of the California red-legged frog; observations of trash or other threats to California red-legged frogs at Pond 14; observations of the stability of the weir at Pond 14; and recommendations for habitat improvements at Pond 14).
- description of California red-legged frog capture and relocation(s), if any
- description of take of California red-legged frog that resulted from Covered Activities during the reporting year, if any
- evaluation of success in meeting biological goals and objectives and consideration of potential need for adaptive management actions
- adaptive management actions, if any
- requested HCP amendments, if any

5.3.3 Adaptive Management

Adaptive management allows for changes to the conservation strategy that may be necessary to achieve the biological goals and objectives of the HCP. This HCP provides for monitoring and reporting described in the preceding sections to determine if the biological goals and objectives are being achieved. In the event that these goals and objectives are not being met, Lehigh will consult with the Service to identify adjustments that may better achieve the goals and objectives.

Potential adaptive management actions at Pond 14 will be evaluated and appropriate measures identified and implemented, if necessary, based on the best available science. Potential adaptive management actions may include vegetation management/restoration if emergent cover increases or decreases enough to substantially diminish breeding habitat quality, sediment removal or culvert repair if the pond becomes too shallow or flow to the pond becomes sufficiently impeded, and weir/gate repairs if adequate water is not being impounded.

If take of California red-legged frog as a result of the Covered Activities exceeds anticipated annual levels or conservation goals are not being achieved, Lehigh will consult with the Service to determine if additional avoidance, minimization, and/or compensation measures may be warranted to ensure take is equal to or less than the permitted take limit at the end of the permit term.

6. Plan Implementation

6.1 Responsibilities

Lehigh will be responsible for implementing all of the conservation measures identified in this HCP, as well as adaptive management measures, if determined to be necessary to meet the biological goals and objectives of the HCP. Conservation measures will be implemented in accordance with monitoring, reporting, and funding requirements described herein. In addition, Lehigh will be responsible for meeting all terms and conditions of the Section 10(a)(1)(B) permit.

6.2 Unforeseen/Changed Circumstances and No Surprises Assurances

The ESA's implementing regulations define unforeseen circumstances as "changes in circumstances affecting a species or geographic area covered by a conservation plan . . . that could not reasonably have been anticipated . . . at the time of the conservation plan's . . . negotiation and development, and that result in a substantial and adverse change in the status of a covered species." Pursuant to the No Surprises Rule, if unforeseen circumstances occur, the Service will not require additional financial compensation or restoration of lost habitat or impose additional restrictions on operation/maintenance that would otherwise be allowed under the HCP. However, if the Service determines that an unforeseen circumstance will affect the outcome of the HCP, additional conservation and mitigation measures may be necessary and will be identified as part of the HCP's adaptive management strategy. Where the HCP is being properly implemented and an unforeseen circumstance has occurred, the additional measures required of Lehigh must be as close as possible to the terms of the original HCP. Any potential additional conservation measures shall not involve the commitment of additional land, water, or financial compensation or additional restrictions on Covered Activities beyond the original terms of the HCP, without the consent of Lehigh.

The HCP No Surprises Rule [50 CFR 17.22 (b)(5) and 17.32 (b)(5)] describes the obligations of the permittee and the Service. The purpose of the No Surprises Rule is to provide assurance to the non-federal landowners participating in habitat conservation planning under the ESA that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee.

Changed circumstances are defined in 50 CFR 17.3 as changes in circumstances affecting a species or geographic area covered by an HCP that can reasonably be anticipated and for which contingency plans can be prepared (e.g., the new listing of species, a fire, or other natural catastrophic event in areas prone to such event). This section (below) identifies changed circumstances and remedial measures that will be taken if the circumstance occurs during the permit term. Per the No Surprises Rule, the Service will not require additional remedial measures beyond those identified for changed circumstances identified in this HCP. If additional conservation measures are deemed necessary to respond to changed circumstances, and such measures are not provided for in the HCP conservation strategy, the Service will not require these additional measures, absent Lehigh's consent and provided that the HCP is being properly implemented in accordance with commitments and provisions specified in the HCP.

Foreseeable changed circumstances within the permit area of this HCP include:

- Discovery of another federally listed species in the permit area – If the presence of another federally listed species is documented in or adjacent to the permit area, Lehigh will notify the Service to determine if the species requires incidental take coverage. If the Service determines that take coverage is necessary for the newly discovered species, Lehigh shall implement additional BMPs identified by the Service as part of the conservation strategy to avoid the likelihood of jeopardy to or take of the species or adverse modification of designated critical habitat (if any). Lehigh shall implement the additional BMPs until Lehigh has applied for and the Service has approved a subsequent amendment of the permit to cover the newly discovered species, take coverage is provided pursuant to Section 7 of the ESA, or the Service notifies Lehigh in writing that the modifications to the conservation strategy are no longer required.
- New listing of a species – If a species that is not covered by the HCP but may be affected by activities covered by the HCP, is listed under the ESA during the term of the permit, the Service may consider this to be a changed circumstance. If the Service determines that take coverage is necessary for the newly listed species, Lehigh shall implement additional BMPs identified by the Service as part of the conservation strategy to avoid the likelihood of jeopardy to or take of the species or adverse modification of designated critical habitat (if any). Lehigh shall implement the additional BMPs until Lehigh has applied for and the Service has approved a subsequent amendment of the permit to cover the newly listed species, take coverage is provided pursuant to Section 7 of the ESA, or the Service notifies Lehigh in writing that the modifications to the conservation strategy are no longer required.
- Amphibian Disease – California red-legged frogs are susceptible to chytrid fungus (*Batrachochytrium dendrobatidis*), ranavirus, and other potential amphibian diseases. There is no known evidence that chytrid fungus or other pathogens currently exist in the California red-legged frog population at the Lehigh property. As indicated in the conservation measures, introduction and spread of amphibian diseases will be minimized by implementing established decontamination procedures. However, this does not ensure that chytrid or other amphibian diseases will not become established in the local amphibian populations. Lehigh will notify the Service if evidence of amphibian disease is observed during Covered Activities and associated surveys and monitoring and will consult with the Service to determine what, if any, additional measures can be feasibly implemented to further minimize spread of the disease in the permit area and will implement any measures that are agreed upon.
- Natural Disaster – The permit area may be subject to natural disasters (e.g., earthquake, landslide, flooding/debris flow that fills Pond 14 or destroys the weir). If a natural disaster occurs in the permit area, Lehigh will assess damages and provide a report to the Service summarizing the effects. If a natural disaster destroys habitat for California red-legged frog at Pond 14, Lehigh will consult with the Service to determine if the habitat can be feasibly restored, or alternative measures can be included as part of the Covered Activities and will implement any restoration or alternative measures that are agreed upon.
- Fire – The permit area may be subject to wildfire. If a wildfire occurs in the permit area, Lehigh will assess damages and provide a report to the Service summarizing the effects. Because wildfire and recovery therefrom are a natural part of the California environment, it will be assumed that the ecosystem will recover naturally; no remedial measures will be taken as part of the HCP.

- Infrastructure Designed for Selenium Control – The permit area may experience discharges of selenium in excess of Regional Water Quality Control Board issued NPDES Permit limits as a result of selenium control infrastructure failure. If the infrastructure fails to operate in accordance with the NPDES Permit and that failure results in a discharge of selenium in excess of NPDES Permit limits resulting in an adverse effect on California red-legged frog, the Service may consider this to be a changed circumstance. If the Service determines adverse effects on California red-legged frog have occurred in this circumstance, Lehigh shall implement additional BMPs identified by the Service and agreed to by the applicant as part of the conservation strategy to avoid the likelihood of jeopardy to or take of the species.

6.3 Revisions and Amendments

6.3.1 HCP Revisions

An HCP may, under certain circumstances, be revised without amending the permit, provided that such revisions are of a minor or technical nature and that the effect on the species involved and the level of take resulting from the revisions are not significantly different than those described in the original HCP. Examples of HCP revisions that would not require permit amendment include, but are not limited to:

- minor revisions to the permit area
- minor changes to the project description
- minor changes to the conservation strategy
- minor changes to survey, monitoring, or reporting protocols

To revise the HCP without amending the permit, Lehigh must submit to the Service, in writing, a description of the proposed HCP revisions and an explanation of why the effects of the proposed revisions would not be significantly different than those described in the HCP. The HCP revisions shall be considered effective upon the date of the Service's written authorization.

6.3.2 Permit Amendments

If a permit amendment becomes necessary, all statutory and regulatory provisions of the ESA and NEPA will be adhered to. Amendment of the Section 10(a) permit for the project is anticipated to be required in the event of:

- significant revision of the permit area
- ESA listing of a species not addressed in the HCP and that may be taken by project activities
- modification of the Covered Activities or conservation strategy, including funding, which may significantly affect authorized take levels, effects of project activities, or the nature or scope of the conservation strategy
- any other modification of the Covered Activities likely to result in significant adverse effects on the covered species that were not addressed in the original HCP

Amendment of the Section 10(a) permit would be treated in the same manner as an original permit application. Permit amendments typically require a revised HCP, a permit application form and

application fee, and a 30-day public comment period. However, the specific documentation required to support a permit amendment may vary, depending on the nature of the amendment.

6.4 Permit Renewal

The Section 10(a)(1)(B) permit may be renewed without issuing a new permit, provided that the permit is renewable, and that biological circumstances and other pertinent factors affecting covered species are not significantly different than those described in the original HCP. To renew the permit, Lehigh shall submit to the Service, in writing:

- request to renew the permit that references the original permit number
- certification that all statements and information provided in the original HCP and permit application, and any approved amendments, are still true and correct or a list of changes
- description of any take that has occurred under the existing permit
- description of activities covered under the original permit that the renewal is intended to cover

If the Service concurs with the information provided in the request, it shall renew the permit consistent with permit renewal procedures (50 CFR 13.22). If a renewal request is on file with the Service's issuing office at least 30 days before expiration of the existing permit, the permit shall remain valid in its existing form while the renewal is being processed. If Lehigh fails to file a renewal request within 30 days prior to permit expiration, the permit shall become invalid upon expiration.

6.5 Permit Transfer

In the event of a sale or transfer of property ownership or easement rights during the life of the permit, an assumption agreement will be prepared and submitted to the Service by the new owner(s) that will include: a new permit application, permit fee, and written documentation providing assurances pursuant to 50 CFR 13.25 that the new owner will provide sufficient funding to implement relevant terms and conditions of the permit, including avoidance and minimization measures. The new owner(s) will commit to all requirements regarding take authorization and mitigation obligations of this HCP, unless otherwise specified in writing and agreed to in advance by the Service.

6.6 Permit Suspension/Revocation

The Service may suspend or revoke the permit if Lehigh fails to implement the HCP in accordance with the terms and conditions of the permit or if suspension or revocation is otherwise required by law. Suspension or revocation of the Section 10(a)(1)(B) permit, in whole or in part, by the Service shall be in accordance with 50 CFR 13.27-29, 17.32 (b)(8).

7. Funding

Lehigh will pay all costs associated with implementing the conservation strategy, including avoidance and minimization measures, compensatory mitigation, and compliance monitoring and reporting. Funding for the following items has been identified in Lehigh's operation and maintenance budget:

- $350,000 for purchase of 6.6 acres of California red-legged frog habitat credits at Ohlone West Conservation Bank; proof of the credit purchase will be provided to the Service after the permit has been issued. Prior to permit issuance, Lehigh will provide the Service a copy of the Agreement for Sale of Conservation Credits, memorializing Lehigh's commitment to purchase the credits.

- up to $100,000 per year for implementing avoidance and minimization measures, monitoring, and reporting; a bond covering these costs for the full permit term (i.e., in the amount of $2 million) will be provided to the Service as a financial assurance mechanism for these components of the HCP conservation strategy.

Table 4 itemizes annual costs that have been estimated to implement the conservation strategy. These include labor and expenses for services to be implemented by qualified biologists and other non-Lehigh staff. Lehigh also will provide labor to assist with implementing all components of the conservation strategy, as indicated in Table 4.

Table 4. Annual Estimated Costs to Implement Conservation Strategy

Activity	Estimated Cost
Pre-construction surveys before implementing covered activities	$10,000
Personnel training	$5,000
Monitoring during covered activities	$30,000
California red-legged frog relocation	$10,000
Pond 14 habitat monitoring and predator removal	$10,000
Annual report preparation	$20,000
Coordination with the Service	$5,000
Total Estimated Cost	**$90,000**

The projected costs are an estimate. Projected annual costs are an average over the 20-year period, because the extent of Covered Activities and resulting avoidance and minimization measures and reporting requirements will vary between years. Lehigh will make the sole decision regarding which Covered Activities will be conducted each year and is not required to expend the estimated amount for conservation strategy implementation each year.

Lehigh understands that failure to provide adequate funding and/or failure to implement the terms of this HCP in full could result in temporary or permanent permit suspension or revocation.

8. Alternatives

8.1 Proposed Project

The proposed project consists of the Covered Activities described in Section 2.2 of this HCP. Under the proposed project, various activities associated with ongoing operation and maintenance of existing Permanente facilities would continue to be implemented in and near suitable aquatic and upland habitat for California red-legged frog. This alternative would affect 0.98 acre of aquatic habitat, including 0.31 acre of suitable breeding habitat, and 1.64 acre of upland habitat for the species. Effects would primarily be temporary but would be repeated in multiple years; 0.10 acre of potential breeding habitat could be permanently affected by converting 0.07 acre to non-breeding aquatic habitat and repeated sediment and vegetation removal from 0.03 acre. Implementing the conservation strategy described in Section 5 would avoid, minimize, and compensate for effects on California red-legged frog. Potential take of California red-legged would very likely be limited to capture and relocation and accidental direct injury or mortality during the period when Covered Activities are implemented. Accidental direct injury or mortality would be avoided and minimized by conducting biological surveys and monitoring before and during Covered Activities and relocating individuals found in the work areas and in danger of injury or mortality. Habitat effects are unlikely to result in take because the nature of these effects would generally be minor in extent and intensity. Finally, implementing Covered Activities has the beneficial effect of reducing erosion and sedimentation that could result in degradation of California red-legged frog habitat.

8.2 Reduced Project

Under a reduced project alternative, the permit area would be reduced, which would presumably result in reduced probability for take of California red-legged frog. However, the permit area associated with the proposed project has been minimized to the smallest possible footprint to fulfill requirements of the existing SWPPP and applicable permits associated with quarry operation and to preserve safe operations. Therefore, a reduced project alternative would not accomplish the necessary goals and is not feasible. In addition, a reduced permit area would reduce the extent and effectiveness of erosion and sedimentation control measures and potentially result in degradation of California red-legged frog habitat. For these reasons, the reduced project alternative has been rejected.

8.3 No Action/Project

Under the No Action Alternative, the project would not be implemented, and an HCP and incidental take permit would not be obtained. Without the project, however, Lehigh would not be able to maintain compliance with applicable water quality and erosion control requirements and operational safety standards. Lehigh is mandated by the State Water Resources Control Board to comply with existing and applicable Clean Water Act permits and Water Quality Certifications; full compliance would not be possible if the Covered Activities are not conducted. In addition, not implementing the Covered Activities would result in erosion and sedimentation that degrades habitat for California red-legged frog. Finally, without the Covered Activities, safety of on-site material transport and vehicle travel would be jeopardized. Therefore, Lehigh has considered this alternative and has found that it is not viable.

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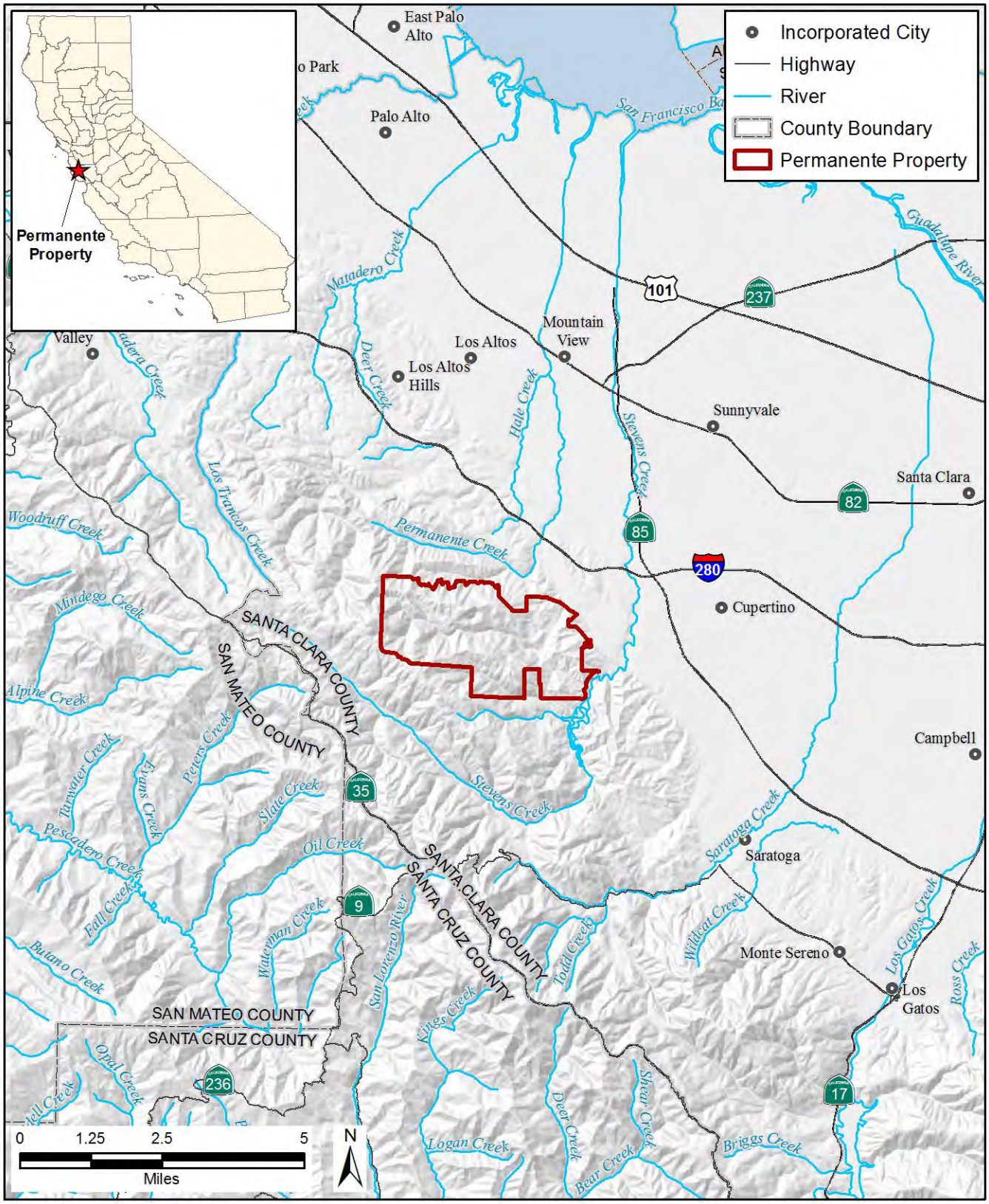
Appendix A. Figures

Figure 1. Permanente Property Location

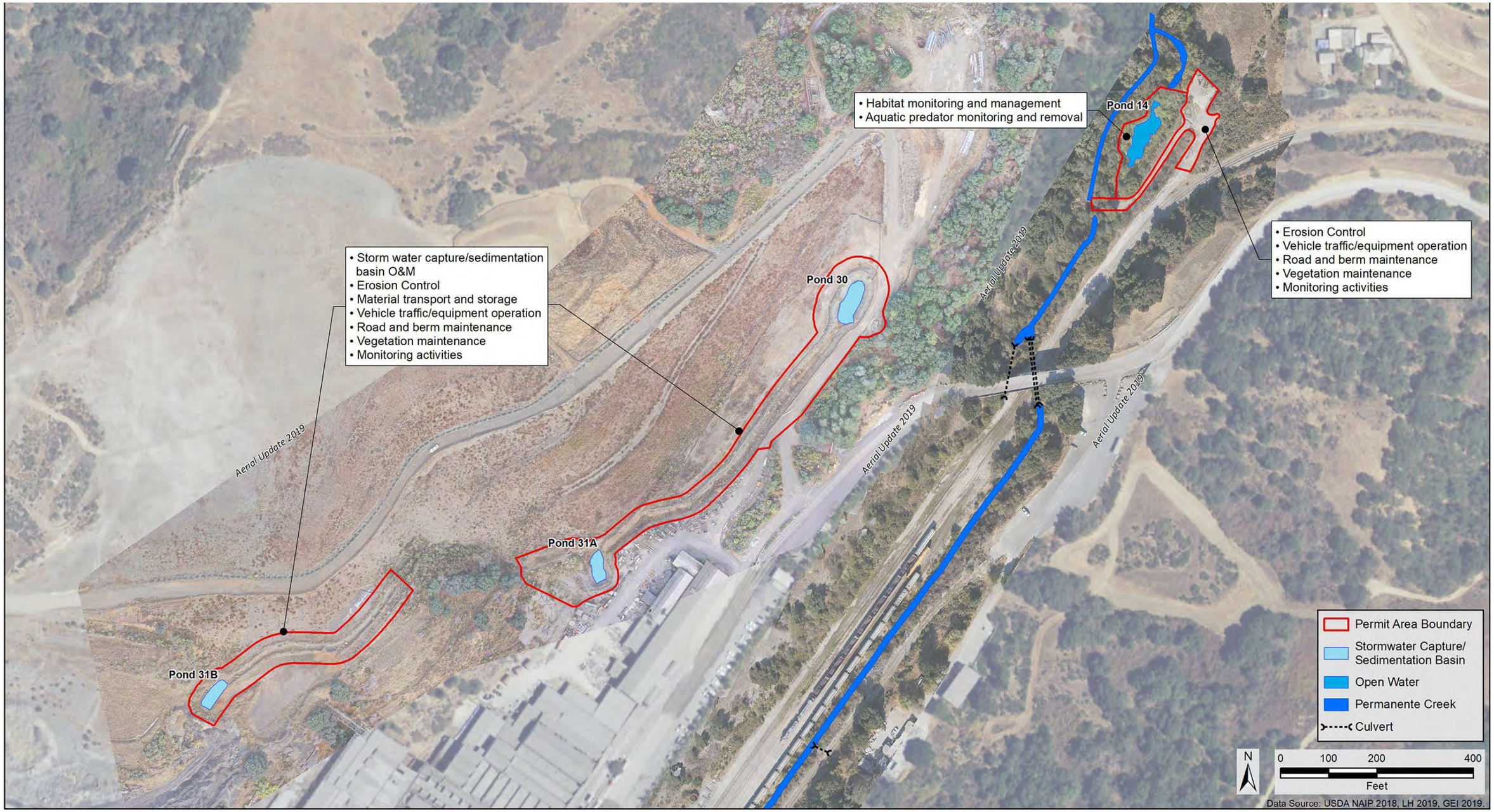


Source: GEI Consultants, Inc. 2019

Figure 2. Permit Area

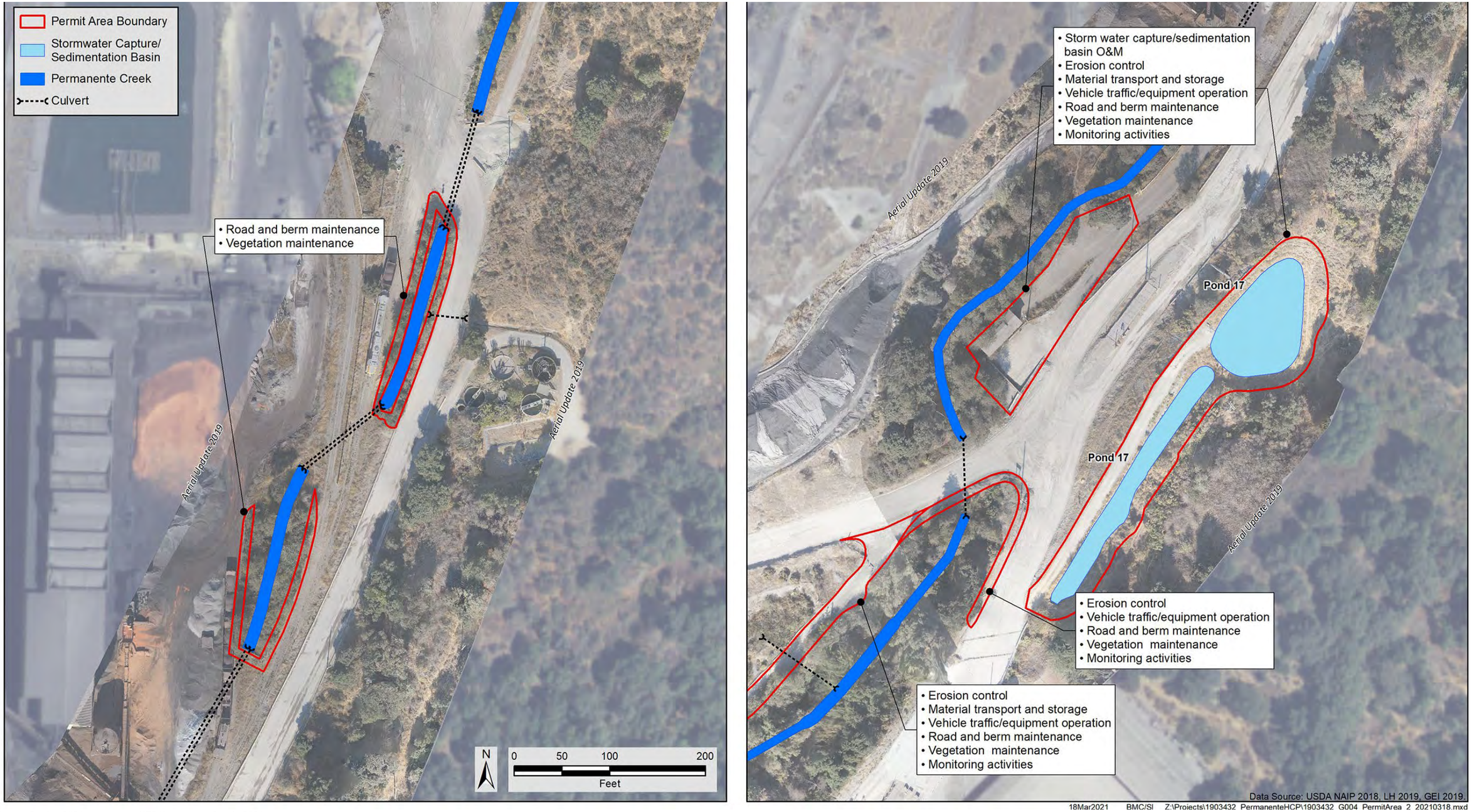
Source: GEI Consultants, Inc. 2021

Figure 3a. Covered Activities in the Permit Area



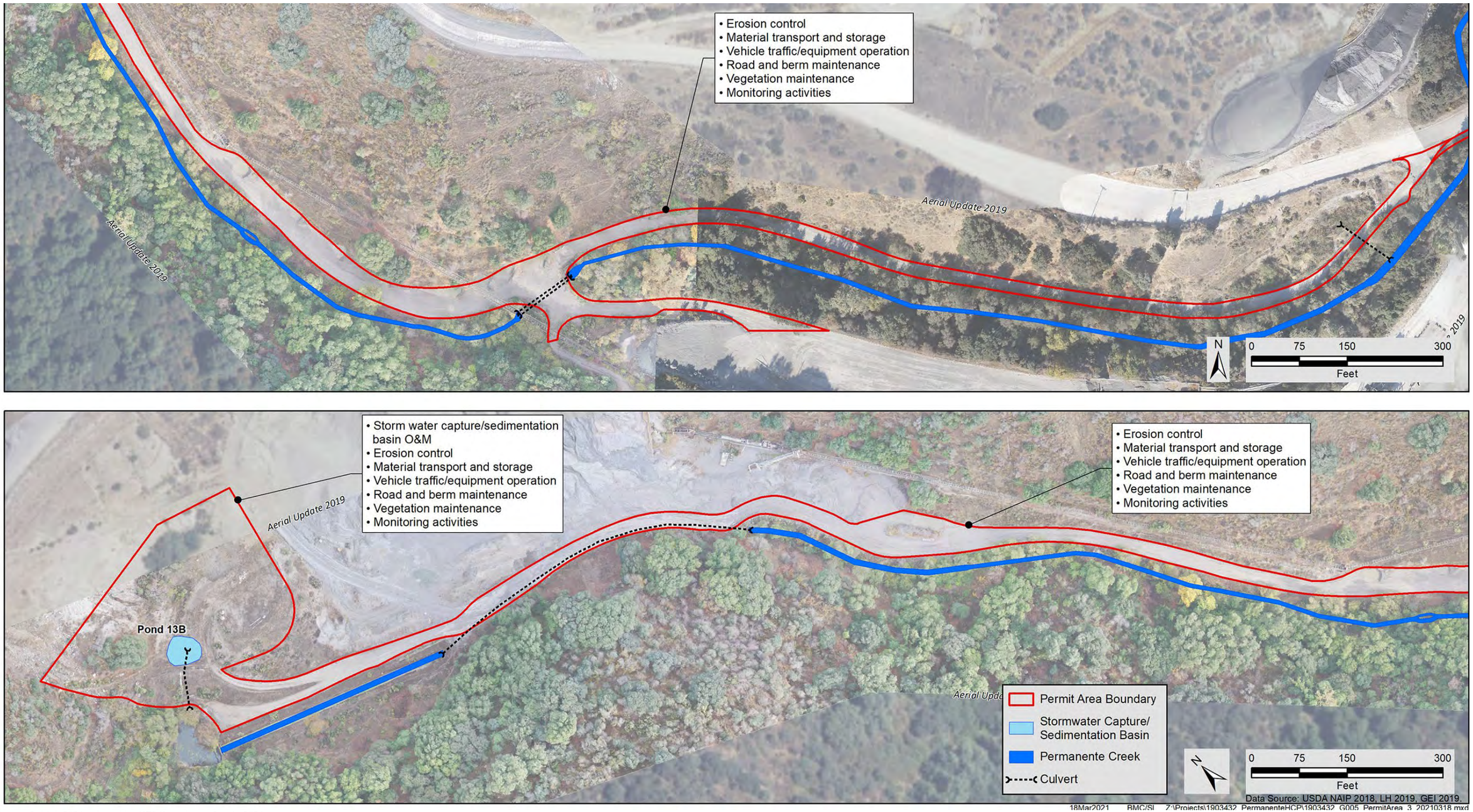
Source: Lehigh 2021, adapted by GEI Consultants, Inc. in 2021

Figure 3b. Covered Activities in the Permit Area



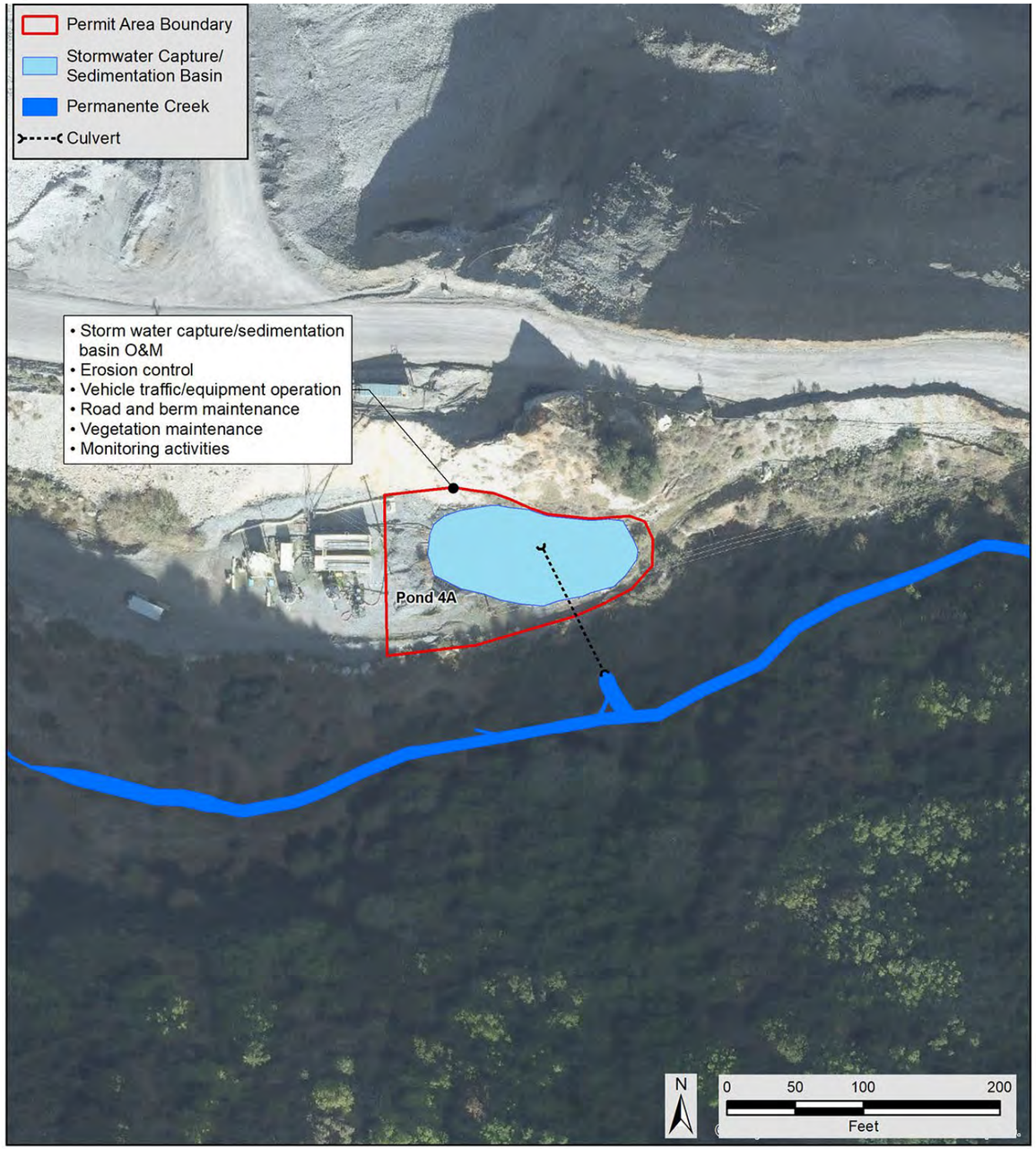
Source: Lehigh 2021, adapted by GEI Consultants, Inc. in 2021

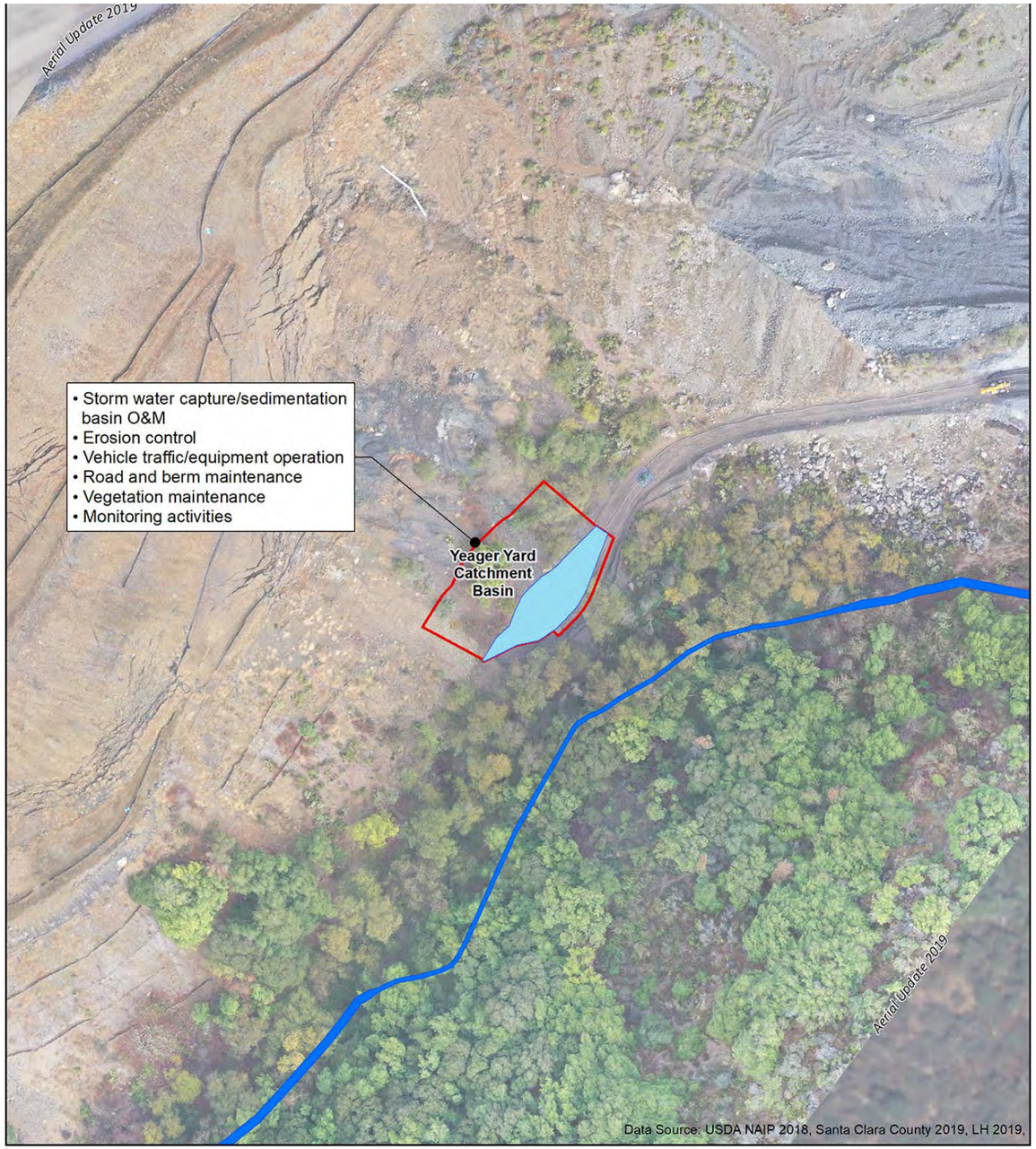
Figure 3c. Covered Activities in the Permit Area



Source: Lehigh 2021, adapted by GEI Consultants, Inc. in 2021

Figure 3d. Covered Activities in the Permit Area



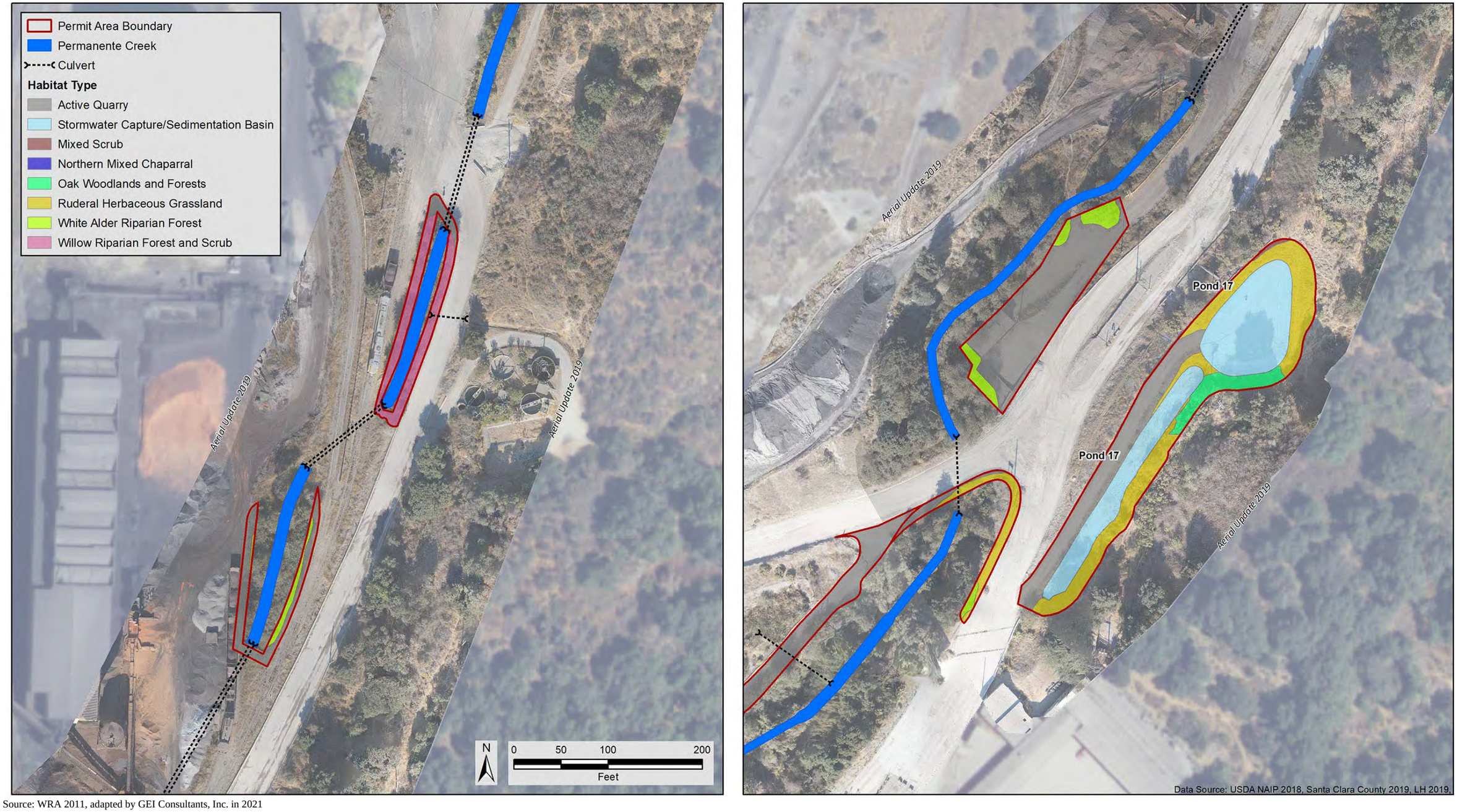


Source: Lehigh 2021, adapted by GEI Consultants, Inc. in 2021

Figure 4a. Land Cover Types in the Permit Area

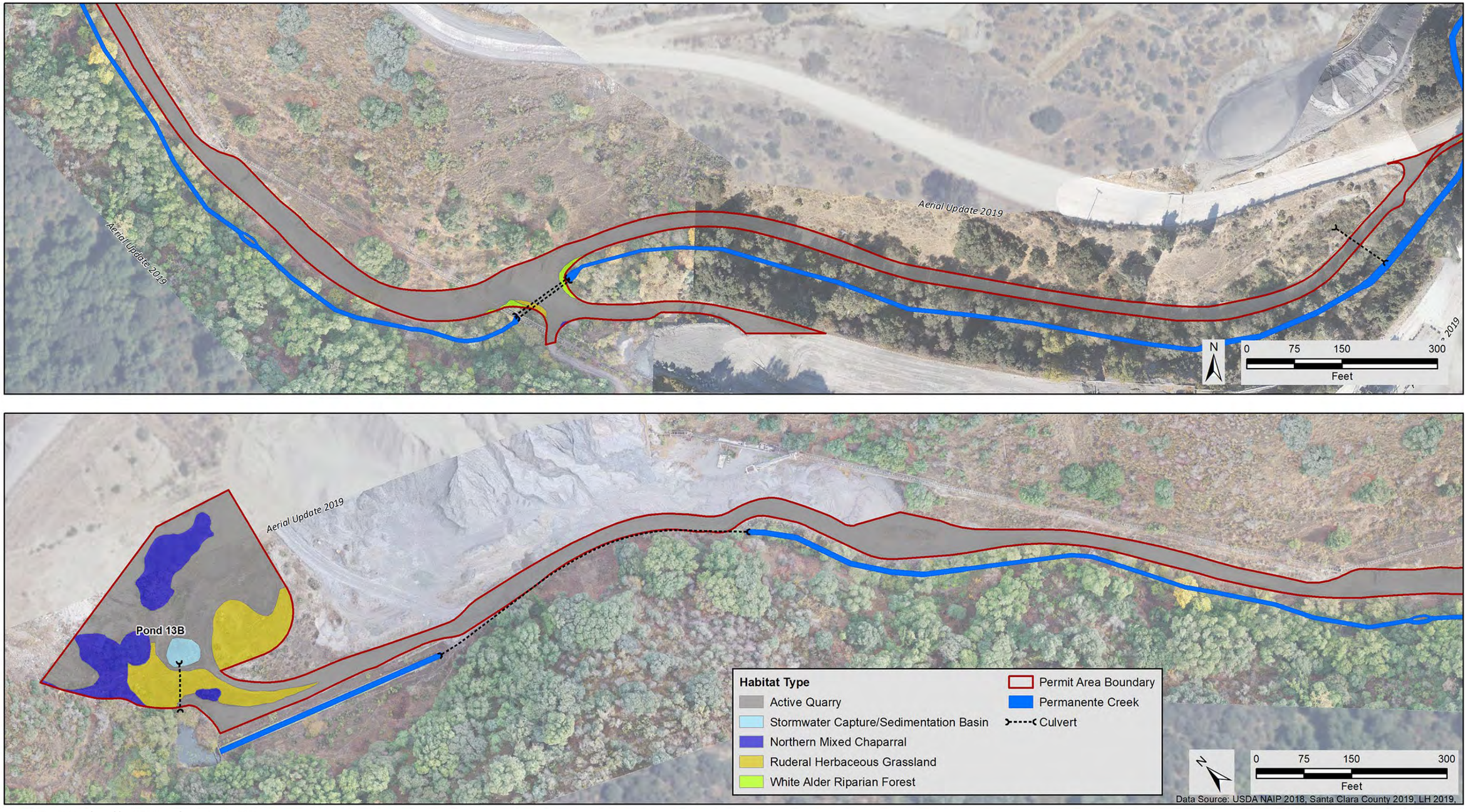
Source: WRA 2011, adapted by GEI Consultants, Inc. in 2020

Figure 4b. Land Cover Types in the Permit Area



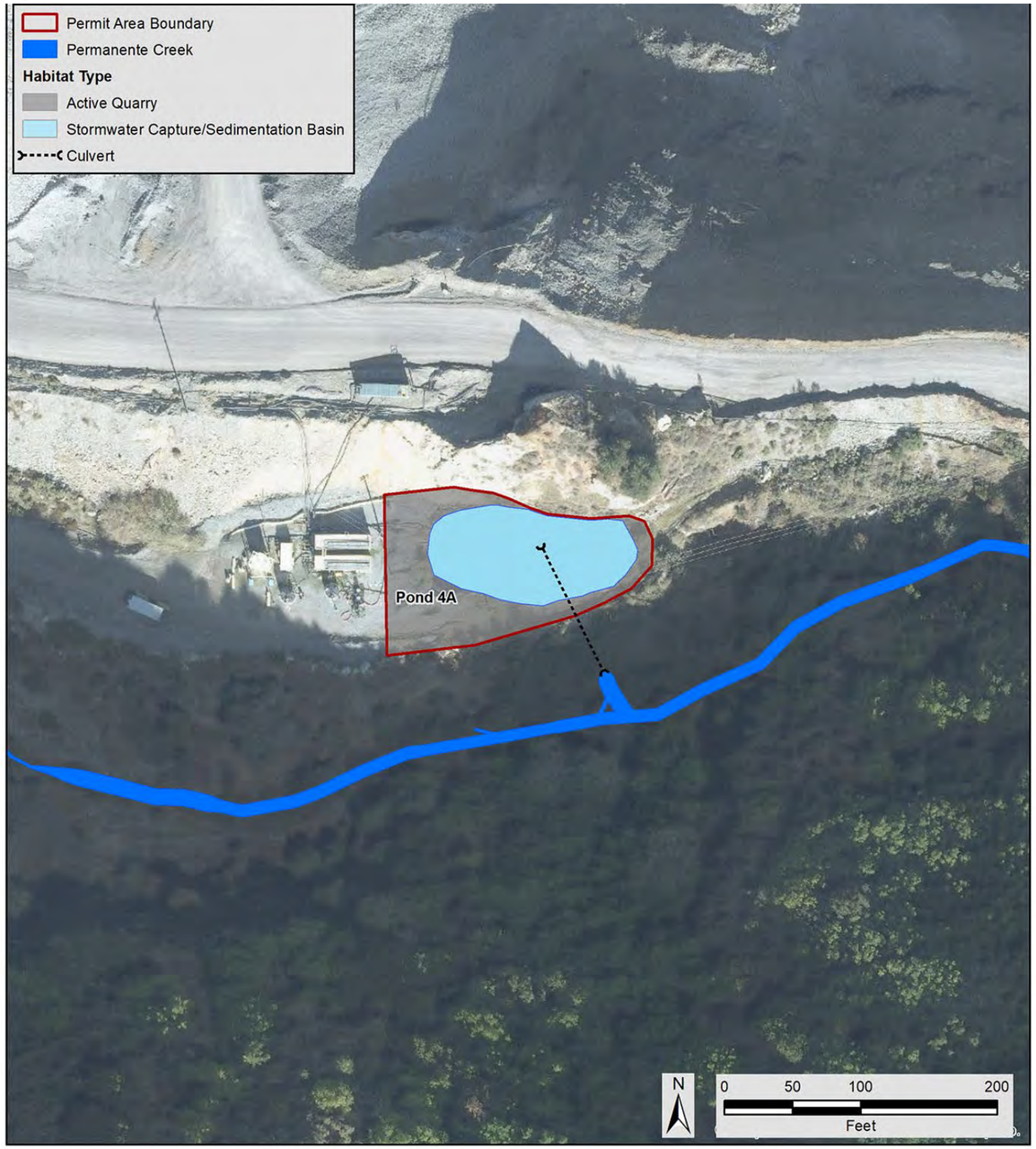
Source: WRA 2011, adapted by GEI Consultants, Inc. in 2021

Figure 4c. Land Cover Types in the Permit Area



Source: WRA 2011, adapted by GEI Consultants, Inc. in 2021

Figure 4d. Land Cover Types in the Permit Area



Source: GEI Consultants, Inc. 2021

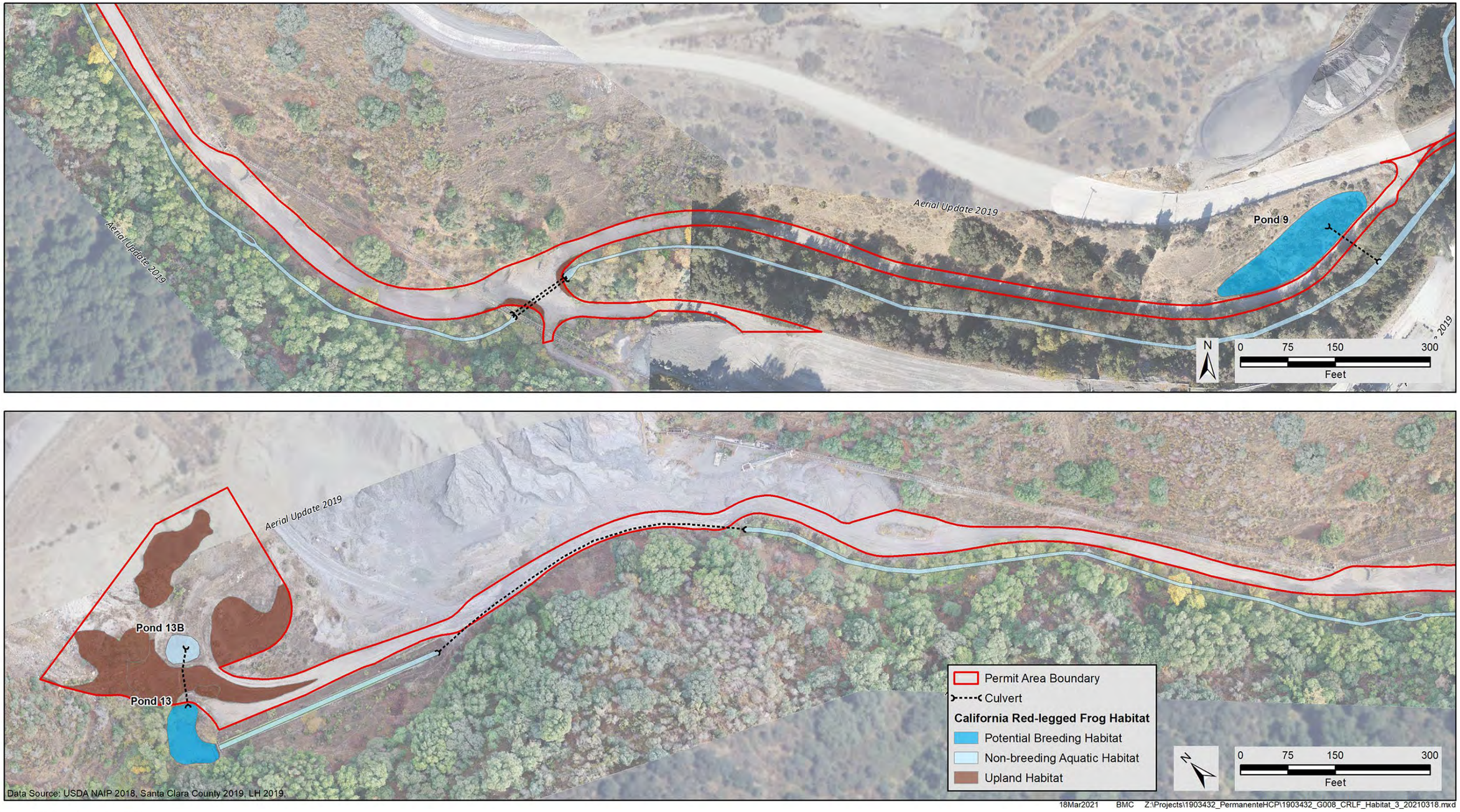
Figure 5a. California Red-Legged Frog Habitat in and adjacent to the Permit Area

Source: GEI Consultants, Inc. 2021

Figure 5b. California Red-Legged Frog Habitat in and adjacent to the Permit Area

Source: GEI Consultants, Inc. 2021

Figure 5c. California Red-Legged Frog Habitat in and adjacent to the Permit Area



Source: GEI Consultants, Inc. 2021

Figure 5d. California Red-Legged Frog Habitat in and adjacent to the Permit Area

Source: GEI Consultants, Inc. 2021

Appendix B. Photographs of Ponds and Storm Water Capture/Sedimentation Basins in or Adjacent to the Permit Area

Pond 4A (in permit area)

Pond 9 (adjacent to permit area)

Pond 13 (adjacent to permit area)

Pond 13B (in permit area)

Pond 14 (in permit area)

Pond 17 – lower (in permit area)

Pond 17 – upper (in permit area)

Pond 30 (in permit area)

Pond 31A (in permit area)

Pond 31B (in permit area)