Appendix B

Natural Habitats, Species and Vegetation at the Stonybrook Creek Fish Passage Improvement Project

Stonybrook Creek Fish Passage Improvement Project
Environmental Assessment

Prepared by the Alameda County Resource Conservation District and Natural Resources Conservation Service
August 2013
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1 Vegetation and Wildlife Habitat

Natural habitats found within the Stonybrook Creek include Annual Grassland, Coastal Oak Woodland, Montane Riparian, Valley Foothill Riparian, Riverine Aquatic Habitat and Fresh Emergent Wetland. Plant communities were mapped using CalVeg geodata from the US Forest Service. The mapping of these plant communities is highly approximate and derived from remote sensing techniques. A detailed ground study of vegetation cover distribution within the entire watershed was not undertaken. Plant communities identified in the CalVeg geodata were crosswalked with *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer, 1988), using the California Department of Fish and Wildlife’s California Wildlife Habitat Relationship system (CWHR) to associate those plant communities with wildlife habitats within Stonybrook Canyon described below. CalVeg data identified in Figure 2 correlating to the wildlife habitats is in parentheses.

**Montane Riparian (Mixed Riparian Hardwoods, California bay)**

Montane riparian woodlands are characterized as a riparian winter-deciduous tree series, often with a limited understory. The transition between this habitat and adjacent non-riparian vegetation is often abrupt, especially where topography is steep. In the Central California Coast Range bigleaf maple (*Acer macrophyllum*) and California bay (*Umbellularia Californica*) are typically dominant of this habitat, with willows (*Salix sp.*) and white alder (*Alnus rhombifolia*) appearing sporadically along streams or seeps. Montane riparian habitats generally maintain the same mosaic of stages, but this can be altered by debris, sedimentation, or uprooting of entire plants due to stream flows. This riparian habitat type has exceptionally high value for many wildlife species including water, thermal cover, migration corridors and diverse nesting and feeding opportunities. This is the dominant habitat type along the project site and along the entire length of Stonybrook Creek (Mayer and Laudenslayer, 1988).

**Coastal Oak Woodland (Coast live oak, California bay)**

This habitat type occupies Mediterranean type climates and are common to mesic (or habitats with a moderate amount of moisture) coastal foothills of California (Sawyer et al., 2008). Along Stonybrook Creek canyon, Coastal Oak Woodlands are not dominant—California bay (*Umbellularia Californica*), Pacific madrone (*Arbutus menziesii*), and canyon live oak (*Quercus chrysolepis*) create a mix (Mayer and Laudenslayer, 1988). The understory generally consists of tolerant shrubs such as the California blackberry (*Rubus ursinus*), creeping snowberry (*Symphoricarpos mollis*), toyon (*Heteromeles arbutifolia*), and herbaceous plants such as bracken fern (*Pteridium aquilinum*), California polypody (*Polypodium californicum*), fiesta flower (*Pholistoma auritum*), and miner’s lettuce (*Claytonia perfoliata*). Coastal Oak Woodlands provide habitat for a variety of species including: quail (*Callipepla californica*), turkeys (*Meleagris gallopavo*), ground squirrels (*Spermophilus beecheyi*), and mule deer (*Odocoileus hemionus*).

**Valley Foothill Riparian (Coastal Mixed Hardwood, Coast live oak)**

Valley Foothill Riparian habitats are associated with mostly winter-deciduous trees in the canopy layer, a sub-canopy tree layer and an understory shrub layer. Herbaceous vegetation constitutes about one percent of the cover. Dominant species in the canopy layer are Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), and valley oak (*Quercus lobata*). Subcanopy trees include white alder (*Alnus rhombifolia*) and boxelder (*Acer negundo*). Typical understory shrubs include California wild rose (*Rosa californica*), California blackberry (*Rubus ursinus*), blue elderberry (*Sambucus mexicana*), poison oak (*Toxicodendron diversilobum*), and...
willows (Salix spp.). The herbaceous layer consists of sedges (Carex spp.), rushes (Juncus spp.), grasses, miner’s lettuce (Claytonia perfoliata), poison hemlock (Conium maculatum) and nettles (Urtica spp.) (Mayer and Laudenslayer, 1988). This is habitat type occurs along the entirety of Stonybrook Creek.

**Annual Grassland (Annual Grass/Forbs)**

California Annual Grassland, also known as Nonnative Grassland, is an herbaceous plant community dominated by nonnative annual grasses (Sawyer et al., 2008). The dominant plant species include bromes (Bromus spp.), California poppy (Eschscholzia californica), filaree (Erodium spp.), lupines (Lupinus spp.), mustard (Brassica spp.), wild oat (Avena spp.), owl’s-clover (Castilleja spp.), ryegrasses (Lolium spp.), thistle (Cirsium spp.), and many others (Mayer and Laudenslayer, 1988). This habitat occurs on the edges of the Valley Foothill Riparian and Montane Riparian habitats that are present in the Stonybrook stream corridor.

**Riverine Aquatic**

Riverine habitats occur in association with many terrestrial habitats, as is the case within the project area. Stonybrook is perennial but features low flows during the summer with high, large flows in the during winter storm events. Riverine habitats are contiguous with Fresh Emergent Wetland habitats. This habitat supports multiple macro- and micro-invertebrates that are found within the creek, depending on streamflow. Created from the cobble substrate and steep slopes of Stonybrook Creek, riffles and deep still water pools provide habitat for a variety of wildlife. The majority of fast-stream insects live in riffles, on the underside of rubble and gravel, sheltered from the currents.

**Fresh Emergent Wetland**

Fresh Emergent Wetlands occur on saturated or periodically flooded soils that support common cattail (Typha angustifolia), common tule (Scirpus acutus), bulrush (Scirpus spp.), sedges (Carex spp.), and rushes (Juncus spp.). Fresh Emergent Wetlands occur in association with aquatic habitats such as Riverine (Mayer and Laudenslayer, 1988). Along Stonybrook Creek, small stands of seasonal wetlands are found in and along the margin of the active channel.

These habitats and vegetation communities support several wildlife species on and/or adjacent to the project site. Species may include, but are not limited to, mule deer (Odocoileus hemionus), coyote (Canis latrans), raccoon (Procyon lotor), opossum (Didelphis virginiana), muskrat (Ondatra zibethicus), ground squirrel (Spermophilus beecheyi), skunk (Mephitis mephitis), and several species of rodents. Several raptor species, waterfowl, resident and migratory birds frequent the project area.

1.1 **Existing Vegetation at the Project Site**

The existing vegetation at the proposed project site varies with elevation and distance from the stream channel and includes: Coast live oak (Quercus agrifolia), valley oak (Quercus lobata), western sycamore (Platanus racemosa), California bay (Umbellularia californica), bigleaf maple (Acer macrophyllum), Pacific madrone (Arbutus menziesii) and scattered willows (Salix spp.) along the streambanks. Several Parney’s contoneaster (contoneaster lacteus), and plum (Maloideae Prunus) are found along the upper floodplain. The understory of the upper banks and terraces are dominated by annual grasses and annual forbs. Shrub species such as California sage (Atemisia californica), poison oak (Toxicodendron diversilobum), and coyote brush (Baccharis pilularis) are also present.
1.2 Existing Wildlife at the Project Site

Protocol level surveys have not been conducted at the site for amphibian, fish and mammal species. Information gathered during multiple study years – 1999, 2002, 2006, 2008, and 2012 (da Costa, 2002; Alexander, 2006 and 2008; Love, 2000; 2001 and 2010, Becker; 2013) have documented the presence of resident rainbow trout (*Oncorhynchus mykiss*) and other native fish species, including California roach (*Lavinia symmetricus*), that have been observed downstream of the current barriers. California red-legged frog adults (*Rana draytonii*) were observed during creek walks in June and July 2013 near the proposed action at MP 8.60 and upstream of MP 8.60 approximately 0.4 stream miles. The pools throughout the creek, including the pool below MP 8.75, provide refugia and potential breeding habitat for the frog. Further discussion of the fish and amphibian species are included below under Section 2.

Several species of concern that have the potential to be present in Stonybrook Creek are discussed in further detail in Section Error! Reference source not found.. Downstream of the project area at the confluence with Alameda Creek, a variety of non-native species have been identified: carp, bass and perch among others, bullfrogs, and crayfish.
## 2 Threatened and Endangered Species

Within a 5 mile radius surrounding the Stonybrook Creek project site, the California Natural Diversity Database (CNDDDB, 2013) reports the presence of five federally listed threatened or endangered species of plants and animals and 12 additional species of concern to the California Department of Fish and Wildlife (CDFW). Below in Table 2 are descriptions of all federal and state listed species identified by CDNNB (2013) potentially present within five miles of the proposed action.

### TABLE 2 SPECIES OF CONCERN WITHIN FIVE MILES OF MP 8.60 AND MP 8.75 IN STONYBROOK CREEK (PROPOSED ACTION) (CNDDB, 2013).

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Federal Status</th>
<th>State Status</th>
<th>CNPS Status</th>
<th>Expected Presence in Project Area</th>
<th>Species Description Below</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amphibians and Reptiles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alameda whipsnake</td>
<td><em>Masticophis lateralis euryxanthus</em></td>
<td>FT</td>
<td>ST</td>
<td></td>
<td>Moderate potential, the project is located within USFWS Critical Habitat Unit 3.</td>
<td>Yes</td>
</tr>
<tr>
<td>California red-legged frog</td>
<td><em>Rana draytonii</em></td>
<td>FT</td>
<td>CSC</td>
<td></td>
<td>High potential, appropriate habitat is present. NRCS/ACRCD biologists have observed adults in Stonybrook Creek, upstream from the project area (within 1/4 mile).</td>
<td>Yes</td>
</tr>
<tr>
<td>California tiger salamander</td>
<td><em>Ambystoma californiense</em></td>
<td>FT</td>
<td>ST</td>
<td></td>
<td>Low potential, Stonybrook’s high velocity flows and lack of appropriate breeding pools do not create ideal habitat. Has been sighted within 5 miles of project site.</td>
<td>Yes</td>
</tr>
<tr>
<td>Western pond turtle</td>
<td><em>Emys marmorata</em></td>
<td></td>
<td>CSC</td>
<td></td>
<td>Moderate potential, known presence in Alameda Creek, downstream of project site. Alameda Creek is &lt;1 mile from project site. No known observations in Stonybrook Creek.</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Fish</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central California Coast Steelhead</td>
<td><em>Oncorhynchus mykiss</em></td>
<td>FT</td>
<td></td>
<td></td>
<td>Anadromous populations of steelhead are not known within the stream due to existing downstream barriers. Resident rainbow trout populations have been observed below the project area.</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Burrowing</td>
<td><em>Athene</em></td>
<td></td>
<td>CSC</td>
<td></td>
<td>Not likely to be present. The species requires open grasslands. Habitat</td>
<td>No</td>
</tr>
<tr>
<td>Animal or Plant</td>
<td>Scientific Name</td>
<td>Potential</td>
<td>Notes</td>
<td></td>
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<tr>
<td>Owl</td>
<td>cunicularia</td>
<td>ST</td>
<td>does not occur in the project area.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California black rail</td>
<td>Laterallus jacquemontis coturniculus</td>
<td>ST</td>
<td>Not likely to be present. The species requires marsh habitat. 1949 CNDDB occurrence. No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sharp-shinned hawk</td>
<td>Accipiter striatus velox</td>
<td>CSC</td>
<td>Moderate potential. Project will occur outside of the raptor breeding/nesting season. No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tri-colored blackbird</td>
<td>Agelaius tricolor</td>
<td>CSC</td>
<td>Not likely to be present. The species needs significant marshy areas. No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mammals</strong> (Figures 4)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>San Francisco dusky-footed woodrat</td>
<td>Neotoma fuscipes annectens</td>
<td>CSC</td>
<td>Moderate potential, although no apparent nests have been observed in the project area.</td>
<td></td>
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<tr>
<td>Yuma myotis</td>
<td>Myotis yumanensis</td>
<td>CSC</td>
<td>Moderate to high potential. Roosts in tree cavities. Closely associated with waterbodies (including streams, riparian areas).</td>
<td></td>
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<td></td>
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<tr>
<td><strong>Plants</strong> (Figure 5)</td>
<td></td>
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</tr>
<tr>
<td>Chaparral harebell</td>
<td>Campanula exigua</td>
<td>1B.2</td>
<td>Not likely to be present. Usually occurs on rocky, serpentine soils. Habitat does not occur in the project area.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congdon’s tarplant</td>
<td>Hemizonia parryi ssp. congdonii</td>
<td>1B.2</td>
<td>Not likely to be present. Found in annual grasslands. Habitat does not occur in the project area.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diablo helianthella</td>
<td>Helianthella castanea</td>
<td>1B.2</td>
<td>Not likely to be present. Diablo helianthella associated with thin, rocky, well-drained soils. It is found in grassy openings in woodlands, chaparral, and coastal scrub, often at the transition zone between woodland and chaparral. Habitat does not occur in the project area.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Clara red ribbons</td>
<td>Clarkia concinna ssp. Automixa</td>
<td>4.3</td>
<td>Not likely to be present. One non-specific occurrence in the Cedar Mountain region from 1903. Usually occurs in chaparral and cismontane woodlands. Habitat does not occur in the project area.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Oregon polemonim</td>
<td>Polemonium carneum</td>
<td>2.2</td>
<td>Not likely to be present. Plant is associated with Coastal prairie, coastal scrub, lower montane coniferous forest. Habitat does not</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Selections are based on California Department of Fish and Wildlife (CNDDB, 2013) records for the program area and adjacent areas with similar habitat.

- FE = federally listed as endangered, FT = federally listed as threatened.
- SE = state listed as endangered, ST = state listed as threatened, CSC = DFW listed as California special concern species.
- California Native Plant Society Rankings:
  1B.2 = Rare, threatened, or endangered in California and elsewhere; fairly endangered in California,
  2.2 = Plants Rare, Threatened, or Endangered in California, but more common elsewhere; fairly threatened in California,
  4.3 = Limited Distribution - a watch list; not considered threatened in California.

### 2.1 Selected species descriptions

Below are selected species descriptions for threatened and endangered species and the species of special concern that have moderate to high potential to occur at the project site, as indicated in the far right column of Table 2.

**Amphibians and Reptiles** (Figure 3)

**Alameda Whipsnake** (*Masticophis lateralis euryxanthus*) – Federal Threatened Species; State Threatened Species (*USFWS, 2005*)

The Alameda whipsnake requires open and partially open, low-growing shrub communities and adjacent grasslands for many of its biological needs although stream channels are also probably used as movement corridors between these habitats.

While the Stonybrook project is located within a Critical Habitat recovery area for the Alameda whipsnake, the project location does not provide ideal habitat due to the steep slopes along the Stonybrook Creek and the lack of scrub-grassland. However, there is a moderate potential for the Alameda whipsnake to use the creek as a channel to access other more suitable habitat. There is potential for this species to pass through the project area and appropriate avoidance and minimization measures will be incorporated to avoid impacts to this species (i.e. activities will take place between June 15-Oct 31st when the snake is more active and less likely to be impacted, with a biologist on-site).
**California Red-Legged Frog** (*Rana draytonii*) – Federal Threatened Species; State Species of Special Concern *(USFWS, 2007a)*

The California red-legged frog occupies a distinct habitat where breeding adults are commonly found in dense, shrubby or emergent riparian vegetation closely associated with deep (greater than 2 feet) still or slow moving water. The largest densities of California red-legged frogs are associated with deep-water pools such as livestock ponds, with dense stands of cattails, tules, or willows. Tadpoles and metamorphs (a transitional lifestage between the tadpole and frog) have been found in a variety of aquatic habitats, including streams, deep pools, backwaters within streams and creeks, ponds, marshes, and lagoons.

Stonybrook Creek and the project site are not located within a Critical Habitat recovery area for the California red-legged frog habitat. However the project site is considered acceptable habitat. The steep banks, rocky and embedded cobble creek and, still-water pools present potential habitat for the California red-legged frog. California Department of Fish and Wildlife *(CNDDB, 2013)* records indicate the presence of California red-legged frogs within a 5 mile radius (approximately 1.65 miles southeast), downstream along Alameda Creek and adult frogs have been observed upstream of the proposed action during stream surveys conducted in 2013.

**California Tiger Salamander** (*Ambystoma californiense*) – Federal Threatened Species; State Threatened Species *(USFWS, 2007b)*

The California tiger salamander spends most of its life in underground burrows, migrating to breeding ponds during the rainy season. They require calm waters such as vernal pools or ponds for breeding and larval development. Stonybrook Creek and the project sites do not provide breeding or dispersal habitat for the California tiger salamander although California Department of Fish and Wildlife *(CNDDB, 2013)* records indicate the presence of this species within a 5 mile radius (approximately 2.25 miles southeast) of the project site in livestock ponds that are on nearby properties. Important habitat elements are lacking at the project sites, including open grasslands, squirrel burrows, and cobble substrate.

**Western Pond Turtle** (*Emys marmorata*) – State Species of Special Concern *(Lovich, no date)*

The Western pond turtle occurs in a wide variety of aquatic habitats, including rivers and streams, lakes, ponds, reservoirs, permanent and ephemeral shallow wetlands, stock ponds, and abandoned gravel pits. Western pond turtles require basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks but can also use emergent vegetation such as willows for basking and cover. Pond turtles typically leave the aquatic site to reproduce, and overwinter in upland habitats.

The project site and immediate vicinity do not provide ideal habitat for the western pond turtle due to a lack of considerable aquatic vegetation although the presence of plunge pools and aquatic invertebrates does provide potential habitat for the species. The California Department of Fish and Wildlife *(CNDDB, 2013)* records indicate the presence of these species within a 5 mile radius (approximately 2.11 miles south) downstream in Alameda Creek and western pond turtles could utilize Stonybrook Creek as well. Appropriate avoidance and minimization measures will be incorporated to avoid impacts to this species (i.e. any remaining pools will be surveyed, activities will occur after turtle eggs have hatched/left the nest site, biologist will be on-site).
**Birds** (Figure 4)

**Sharp-shinned hawk** (*Accipiter striatus velox*) – State Species of Special Concern (*Polite & Pratt, no date*)

The sharp-shinned hawk is fairly common and migrant throughout California, except in areas with deep snow. Preferred habitat includes riparian corridors, with north facing slopes and perches as critical requirements. This species often forages in openings at edges of woodlands, hedgerows, brushy pastures, and shorelines. Intermediate to high-canopy cover forests are used as cover, with nests located in even-aged, single-layered forest canopies.

The proposed action will not likely effect the Sharp-shinned hawk. The California Department of Fish and Wildlife (CNDDDB, 2013) records indicate the presence of these species within a 5 mile radius (approximately 4.27 miles northwest), at the southwest end of Walpert Ridge, Hayward. Activities will occur outside of the nesting season.

**Fish** (Figure 4)

**Central Coast California Steelhead** (*Oncorhynchus mykiss*) – Federal Threatened Species (*Jones and Stokes, 2006*)

The primary habitat for Central Coast California steelhead consists of shaded pools of small, cool, low-flowing stream reaches. They can use warm water habitats below some dams or pipeline outfalls, where summer releases provide high summer flows and fast-water feeding habitat. Adult steelhead require spawning sites with gravel substrate with sufficient flow velocity to maintain circulation through the gravel. Juveniles need deeper waters where low velocity areas are in close proximity to higher velocity areas and cover is provided by boulders, undercut banks, logs, or other objects.

California Department of Fish and Wildlife (CNDDDB, 2013) records indicate the presence of these species within a 5 mile radius, potentially located on the project sites and downstream in Alameda Creek. Steelhead from Alameda Creek have been identified as genetically associated with the Central California Coast stock listed as a federally threatened species. This listing has focused public attention on restoring fish passage on Alameda Creek. Naturally sustaining populations of steelhead are currently not present in Stonybrook Creek. However, the entire Stonybrook Creek and the project site potentially provide ideal habitat for steelhead, as the Alameda Creek and its tributaries (Stonybrook Creek included) historically contained steelhead. Aside from two adult steelhead who were transported over the BART weir (an impassable fish barrier downstream) in Fremont in February 25, 2008, no anadromous steelhead have been reported in Stonybrook Creek since the 1960s (CNDDDB, 2013). Resident non-anadromous *Oncorhynchus mykiss* (rainbow trout) have been observed throughout the lower portion of Stonybrook Creek below the project sites in all study years – 1999, 2002, 2006, 2008, and 2012 (Alameda County, 2002; EBRPD 2006 and 2008; Love, 2000; 2001 and 2010, Becker; 2013). The current *O. mykiss* population appears to be self-sustaining and available habitat within the lower canyon reaches provides sufficient pool rearing and spawning habitat (Becker, 2013).

The Stonybrook Creek provides potential spawning habitat and rearing habitat for juvenile steelhead during spring migration through late summer and fall (Becker, 2013). Downstream removal of fish barriers (addition of fish ladders on the BART weir) by the Alameda County Water District (ACWD), in association with the Alameda Creek Fisheries Restoration Workgroup, are planned for 2014 (AWCD, 2013). This will increase the potential use of the Stonybrook Creek by migrating steelhead. Informal consultation has been conducted with NMFS.
Mammals (Figure 4)

San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) – Federal and State Species of Special Concern (*Brylski, 2008*)

The San Francisco dusky-footed woodrat is common throughout the state of California, often found in forest habitats of moderate canopy with a relatively dense understory. This species mainly feeds on woody plants, foraging on ground, in bushes and in trees. The San Francisco dusky-footed woodrat creates nests as a home and for reproduction.

No woodrat nests have been observed in the project vicinity. The nearest indicated presence of this species from California Department of Fish and Wildlife (CNDDB, 2013) records is within a 5 mile radius (approximately 2.61 miles southwest) of the project site. A survey will be conducted to ensure that no nests are present in or near the proposed action area.

Yuma myotis (*Myotis yumanensis*) – State Species of Special Concern (*Harris, no date*)

Distribution of this species is closely tied to bodies of water, which it uses as foraging sites and sources of water. This species is found in a wide variety of habitats, with open forests and woodlands with open sources of water as optimal habitats. Yuma myotis feeds on a wide variety of small flying insects, usually over water sources such as ponds, streams or stock ponds. Cover often includes a variety of crevices that can be located on buildings, beneath bridges, or caves.

California Department of Fish and Wildlife (CNDDB, 2013) records indicate the presence of these species within a 5 mile radius (approximately 2.31 miles southwest) of the project site. Yuma myotis may occur near the project site. All impacted trees will be surveyed for potential bat roosts.
3 Vegetation Establishment

The project will include construction activities that will remove riparian vegetation (GHD, 2013). Selected native plants will be transplanted to mitigate the removal of these trees. The plan includes removal of one non-native plant that will be replaced at a 1:1 ratio with an appropriate native species to offset the loss of canopy cover provided by this tree. All other native plant species will be planted onsite at the proposed mitigation ratios below. Final mitigation ratios will be defined as part of the environmental permits obtained for the project. See Table 2 for details on the impacted species and the mitigation associated for each.

**TABLE 2: ON-SITE TREE REMOVAL IMPACTS**

<table>
<thead>
<tr>
<th>Species</th>
<th># of Plants Greater than 4&quot; DBH</th>
<th>Total Plants in Survey Area</th>
<th>Proposed Mitigation Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-natives</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parney’s cotoneaster</td>
<td>1</td>
<td>1</td>
<td>1:1</td>
</tr>
<tr>
<td><strong>Natives</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California bay laurel</td>
<td>2</td>
<td>2</td>
<td>9:1</td>
</tr>
<tr>
<td>Big leaf maple</td>
<td>2</td>
<td>2</td>
<td>9:1</td>
</tr>
<tr>
<td>White alder</td>
<td>2</td>
<td>2</td>
<td>9:1</td>
</tr>
<tr>
<td>Coast live oak</td>
<td>2</td>
<td>2</td>
<td>3:1</td>
</tr>
</tbody>
</table>

1 Trees of a size less than 4" diameter at breast height (DBH) do not require mitigation.
4 References


Figure 1: Project Location Map
Figure 2: Vegetation Types

Vegetation Types - Stonybrook and Vicinity
Stonybrook Creek Fish Passage Improvement Project

Source:
Major Rivers and Streams,
Teale GIS Solutions Group 1998
LCAWP Vegetation Data, CDF & USFWS 2005