

**East Bay Regional Park District**

**Regional Maintenance Activities  
Alameda and Contra Costa Counties**

**ATTACHMENT A**

**The East Bay Regional Park District Routine  
Maintenance and Restoration Activities in Various  
Waterbodies in Alameda and Contra Costa Counties,  
California, in the San Francisco Bay Region**

# **The East Bay Regional Park District Routine Maintenance and Restoration Activities in Various Waterbodies in Alameda and Contra Costa Counties, California in the San Francisco Bay Region**



Prepared by  
Steven Bobzien and Courtney Wilson  
East Bay Regional Park District  
2950 Peralta Oaks Court  
Oakland, California 94605  
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# **The East Bay Regional Park District Routine Maintenance and Restoration Activities in Various Waterbodies in Alameda and Contra Costa Counties, California**

## **Project Description and Affected Waterbodies:**

The East Bay Regional Park District (“District”) currently manages 66<sup>1</sup> regional parks, recreation areas, wilderness lands, shorelines, preserves, and land bank areas, as well as 43 distinct trail segments, which encompass approximately 122,890 acres in Alameda and Contra Costa Counties, California (see Appendix map). The District’s mission is to acquire, preserve, protect, and operate regional parklands in perpetuity for public use, while conserving these lands for natural resources. Over 90 percent of District lands are protected and operated as natural parklands. This includes parklands along the shorelines of San Francisco, San Pablo, Suisun Bays and the Delta Region, and inland areas of the coastal and transverse ranges of the East Bay. Within various waterbodies and adjacent upland habitats, the District performs routine maintenance activities designed to maintain existing facilities and structures, improve watersheds and coastal shoreline conditions.

District parklands encompass the shorelines of San Francisco Bay, San Pablo Bay, Suisun Bay, the Delta Region, and inland areas of the coastal and transverse ranges of the East Bay. Throughout the District habitats are often delineated by elevation change (ranging from sea level to 3817 feet) and influenced by the coast and transverse ranges, creating mesic cismontane conditions in the west and xeric transmontane rain shadow effect in portions of eastern Alameda and Contra Costa Counties. A Mediterranean climate consisting of winter rain and summer dry periods influences the mosaic of vegetation types and ecotonal communities within the District. The District’s natural parklands are characterized by a diversity of ecotones consisting of estuarine, saline-brackish-fresh water emergent wetlands, diked bay lands, willow woodlands, redwood forest, montane hardwood-conifer forest, mixed evergreen forest, eucalyptus forest, coastal oak woodland, valley oak woodland, blue oak woodland, blue oak-gray pine woodland, valley foothill riparian woodland, California sycamore-cottonwood riparian woodland, mixed chaparral, California sagebrush scrub, annual grassland, perennial grassland, lentic and lotic habitats.

<sup>1</sup> Including one potential Regional Park pending land transfer

Within the District, 56 parkland units are located within San Francisco Regional Water Quality Control Board Region 2. Approximately 97,290 acres or 80 percent of the District's acreage is in Region 2. Currently, the District contains 398 fresh water ponds, six fresh water lakes, 102 streams (i.e. ephemeral, intermittent, and perennial) with hundreds of tributaries and interconnected drainages, and approximately 49 miles of bay-delta tidal shoreline (See Appendix Waterbody Atlas). Within the District, 78 percent of ponds are located in Region 2. The lentic waterbodies vary in size and depth, from small rock depressions or ponds less than one square meter and few centimeters deep, to larger waterbodies covering several square kilometers with depths greater than ten meters. Most lentic waterbodies are man-made ponds consisting of constructed earthen dams within stream channels or graded inland depressions creating upland waterbodies. Approximately 88 percent of the major streams within various District parklands are located in Region 2. Lotic habitat consists of very small ephemeral and seasonal drainages to intermittent and larger volume perennial streams. In addition, approximately 82 percent of bay-delta tidal shoreline in the District is located in Region 2. The bay delta shoreline areas are a complex of tidal and diked, muted tidal wetlands with varied transitional upland ecotones.

### **Proposed Activities:**

The District conducts routine maintenance activities in streams, catch basins, seeps, springs, ponds, lakes, beaches, tidal marshes, and shoreline levees. The purpose of these activities is to maintain existing facilities, protect water quality, to reduce erosion, provide public and emergency access, and maintain natural resources that support a variety of listed, special status, and other native species. A variety of routine maintenance activities will occur in several watersheds, including: Alameda, Alhambra, Claremont, Garrity, Rheem, Kirker, Marsh, Mount Diablo, Pinole, San Pablo, San Leandro, San Lorenzo, Walnut and Wildcat Creeks, San Francisco Bay, San Pablo Bay, and Suisun Bay. Covered routine maintenance activities include replacement of culverts, replacement and upgrade of culverts with new head and tail walls, installation of new culverts with new head/tail walls, installation of culvert energy dissipaters, installation of articulated armored stream ford crossings, maintenance of existing articulated fords, installation of natural rock fords, vegetation and debris removal from streams and drainages, bank stabilization, removal of sediment- debris from existing culverts, maintenance of clear span bridges, installation of clear-span bridges, repair and maintenance of existing spring

boxes, routine dredging of silt basins, ponds and lakes; maintenance of existing shoreline facilities, docks, fishing piers, boat launches, marsh board walks and overlooks; removal of hazardous man-made structures and vessels from various waterbodies; re-construction of earthen pond dams and spillways; stream, pond, and tidal wetland restoration.

Thirteen years of data on the effects of these routine maintenance projects were collected and used to determine the minimum and maximum range of impact to land cover for each activity type. The overall area (acres) of disturbance or impact to aquatic and adjacent terrestrial habitat for each activity type in the San Francisco Bay Region 2 is included in the Appendix Table 1 and in the following project descriptions.

*Culvert Repair, Replacement and Maintenance:*

Existing degraded culverts will be replaced with same-size culverts, or if existing culverts are inadequate to convey peak flows, culverts of a larger size (diameter). Culverts will be installed to match the natural channel grade.

Mechanized equipment, including excavator, backhoe, ten-wheel dump truck, water truck, and soil compactors, will access the project sites and operate mostly on existing roads, trails, or levees and avoid wetted channels or other waterbodies. These activities, including the potential effects to upland, riparian, or wetland vegetation, will have temporary disturbance impacts ranging from 0.0001 acres to 0.018 acres (mean per culvert = 0.007 acres) with no permanent effects being anticipated. Removal of riparian and upland vegetation will be minimized; the work typically only requires the removal of lateral limbs to provide access. Project duration ranges from one to seven days. Within Region 2, the expected frequency of this activity type is approximately four to five culverts per year. The total anticipated effect for five years ranges from 0.0018 – 0.40 acres of temporary impact to aquatic and terrestrial habitats. Overall, total anticipated effect for ten years ranges from 0.0035 – 0.80 acres of temporary impact to aquatic and terrestrial habitats.



### *Replacement Upgrade of Existing Culverts:*

Existing degraded culverts will be replaced with same-size culverts, or if existing culverts are inadequate to convey peak flows, culverts of a larger size (diameter and/or length). This work includes the installation of new rock head and/or tail walls to stabilize the streambank and prevent head cutting and/or down cutting of stream channels. Culverts will be installed at existing channel grade.

Mechanized equipment, including excavator, backhoe, ten-wheel dump truck, water truck, and soil compactors, will access the project sites and operate mostly on existing roads and levees avoiding wetted channels or waterbodies. These activities, including the potential effects to upland, riparian, or wetland vegetation will have temporary disturbance impacts ranging from 0.0001 acres to 0.018 acres (mean per culvert = 0.007 acres). Permanent effects to waterbodies and adjacent uplands are minimal and range from 0.0001 acres to 0.018 acres (mean per culvert = 0.007 acres). Removal of riparian and upland vegetation will be minimized; the work typically only requires the removal of lateral limbs to provide access. Project duration ranges from one to seven days. Within Region 2, the expected frequency of this activity type is approximately seven to nine culverts per year. The total anticipated effect for five years ranges from 0.0035 – 0.79 acres of temporary impact and 0.0035 – 0.79 acres of permanent impact to aquatic and terrestrial habitats. Overall, total anticipated effect for ten years ranges from 0.007 – 1.58 acres of temporary impact and 0.007 – 1.58 acres of permanent impact to aquatic and terrestrial habitats.

### *Maintenance of Sediment-Debris from Culverts:*

During and/or prior to high winter flows, accumulated sediment and debris will be removed from culverts using equipment operated from the top of banks and levees, or by hand crews to maintain flow and prevent flooding. Some mechanized equipment may be required, and could include backhoe, ten-wheel dump truck, or four wheel drive truck. This equipment will access the project sites and operate mostly on existing roads, trails, or levees and completely avoid wetted channels or other waterbodies. Woody debris that does not block flow will be left in place to provide habitat for fish and wildlife. These activities will have minimal temporary effect to drainages and adjacent uplands ranging from 0.0001 acres to 0.043 acres (mean per

culvert clearing = 0.007 acres) with no permanent effects being anticipated. Project duration ranges from one half day to one day. Within Region 2, the expected frequency of this activity type is approximately four to five culverts per year. The total anticipated effect for five years ranges from 0.0018 – 0.95 acres of temporary impact to aquatic and terrestrial habitats. Overall, total anticipated effect for ten years ranges from 0.0035 – 1.9 acres of temporary impact to aquatic and terrestrial habitats.

#### *Installation of New Culvert Head and Tailwalls:*

At locations with existing culverts the installation of new rock head and/or tail walls will be used to stabilize the streambank and prevent head and/or down cutting. These rock structures will be installed in the channel bed and bank.

Mechanized equipment, including excavator, backhoe, ten-wheel dump truck, water truck, and soil compactors, will access the project sites and operate mostly on existing roads and levees avoiding wetted channels or waterbodies. These activities, including the potential effects to upland, riparian, or wetland vegetation, will have temporary disturbance impacts ranging from 0.002 acres to 0.005 acres (mean per culvert = 0.0038 acres). Permanent effects to waterbodies and adjacent uplands are minimal and range from 0.002 acres to 0.005 acres (mean per culvert = 0.0038 acres). Removal of riparian and upland vegetation will be minimized; the work typically only requires the removal of lateral limbs to provide access. Project duration ranges from one to four days. Within Region 2, the expected frequency of this activity type is approximately two to three head and/or tailwalls per year. The total anticipated effect for five years ranges from 0.018 – 0.066 acres of temporary impact and 0.018 – 0.066 acres of permanent impact to aquatic and terrestrial habitats. Overall, total anticipated effect for ten years ranges from 0.035 – 0.13 acres of temporary impact and 0.035 – 0.13 acres of permanent impact to aquatic and terrestrial habitats.

#### *Installation of Energy Dissipaters:*

Energy dissipaters will be installed to prevent erosion associated with flow discharge from existing culverts. These structures consist of drain to rip-rap size rock and are similar to or an extension of a culvert tail-wall structure. Energy dissipaters are very effective in reducing channel erosion and down cutting.

Mechanized equipment, including excavator, backhoe and ten-wheel dump truck, will access the project sites and operate mostly on existing roads and levees, avoiding wetted channels or waterbodies. These activities, including the potential effects to upland, riparian, or wetland vegetation, will have temporary disturbance impacts ranging from 0.001 acres to 0.01 acres (mean per culvert = 0.0046 acres). Permanent effects to waterbodies and adjacent uplands are minimal and range from 0.001 acres to 0.01 acres (mean per culvert = 0.0046 acres). Removal of riparian and upland vegetation will be minimized; the work typically includes the loss of bank or shoreline vegetation. Project duration ranges from one to three days. Within Region 2, the expected frequency of this activity type is approximately one to two energy dissipaters per year. The total anticipated effect for five years ranges from 0.0044 – 0.088 acres of temporary impact and 0.0044 – 0.088 acres of permanent impact to aquatic and terrestrial habitats. Overall, total anticipated effect for ten years ranges from 0.0088 – 0.18 acres of temporary impact and 0.0088 – 0.18 acres of permanent impact to aquatic and terrestrial habitats.

*Installation of Armored or Natural Rock Ford-Stream Crossings:*

Armored concrete pre-cast, open-cell, interlocking blocks will be laid within road crossings and/or trails and on top of the streambed and drainages. These fords will be installed in select locations to replace existing culverts and at natural drainage crossings to provide stability and minimize channel bed erosion. Ford crossings will be installed at the ground surface of the channel banks and bed. The armored crossings are designed and installed to maintain or improve flow and reduce erosion.

Hand tools are used for most of these construction activities. Some mechanized equipment may be required and could include the use of an excavator, backhoe, ten-wheel dump truck, water truck, and soil compactors. This equipment will access the project sites and operate mostly on existing roads, trails, or levees and completely avoid wetted channels or other waterbodies. Ford crossings are approximately 10 to 12 feet wide and equivalent to the width of the corresponding road or trail crossing. The length of the crossing from bank to bank and the total area of the crossing vary based on the width of the channel. These activities, including the potential effects to upland, riparian, or wetland vegetation, will have a temporary disturbance ranging from 0.004 acres to 0.009 acres per project (mean per ford crossing = 0.0058 acres). Permanent effects to waterbodies and adjacent uplands range from 0.004 acres to 0.009 acres per project (mean per

ford crossing = 0.0058 acres). Project duration ranges from two to five days. Within Region 2, the expected frequency of this activity type is approximately two to three crossings per year. The total anticipated effect for five years ranges from 0.035 – 0.12 acres of temporary impact and 0.035 – 0.12 acres of permanent impact to aquatic and terrestrial habitats. Overall, total anticipated effect for ten years ranges from 0.070 – 0.24 acres of temporary impact and 0.070 – 0.24 acres of permanent impact to aquatic and terrestrial habitats.

#### *Maintenance of Existing Ford Crossings:*

The repairs made to existing armored or natural rock fords will help maintain road and/or trail crossings within streambed and drainages. These fords have been installed in select locations to replace existing culverts and at drainage crossings to provide stability and minimize channel bed erosion. Armored and rock ford crossings are installed at surface level and are designed to maintain flow in the channel bed and reduce erosion.

Hand tools are used for most of the construction activities. Some mechanized equipment may be required and could include the use of an excavator, backhoe, ten-wheel dump truck, water truck, and soil compactors. This equipment will access the project sites and operate mostly on existing roads, trails, or levees and completely avoid wetted channels or other waterbodies. Ford crossing dimensions are equivalent to the width of corresponding road or trail crossings. The length of the crossing from bank to bank and the total area of the crossing vary based on the width of the channel. These activities, including the potential effects to upland, riparian, or wetland vegetation, will have a temporary disturbance impact ranging from 0.005 acres to 0.01 acres per project (mean per ford crossing = 0.0063 acres). Permanent effects to waterbodies and adjacent uplands should be minimal and have an un-measurable effect. Project duration ranges from two to five days. Within Region 2, the expected frequency of this activity type is approximately one crossing per year. The total anticipated effect for five years ranges from 0.022 – 0.044 acres of temporary impact to aquatic and terrestrial habitats. Overall, total anticipated effect for ten years ranges from 0.044 – 0.088 acres of temporary impact to aquatic and terrestrial habitats.

#### *Maintenance and Installation of Clear Span Bridges:*

Clear-span bridges will be installed to replace existing culverts and natural (unarmored) stream crossings. Bridge concrete footings and abutments will be poured in place from above the top of

the bank and will not have contact with channel flow. Each bridge span will be lowered into place by a crane operated from above the bank or tidal channel.

Other mechanized equipment, including excavator, backhoe, and ten-wheel dump truck, will access the project sites and operate mostly on existing roads and levees avoiding wetted channels or waterbodies. These activities, including the potential effects to upland, riparian, or wetland vegetation, will have temporary disturbance impacts ranging from 0.0001 acres to 0.01 acres per project (mean per clear-span bridge = 0.0042 acres) with no permanent effects to aquatic habitat being anticipated. Permanent effects to upland habitat are minimal and range from 0.0001 acres to 0.01 acres per project (mean per clear-span bridge = 0.0042 acres). Project duration ranges from one to 20 days. Within Region 2, the expected frequency of this activity type is approximately one bridge per year. The total anticipated effect for five years ranges from 0.00044 – 0.044 acres of temporary impact to aquatic habitats. Overall, total anticipated effect for ten years ranges from 0.00088 – 0.088 acres of temporary impact to aquatic habitat.

*Streambank, Shoreline, and Levee Stabilization:*

Bank and levee stabilization methods will be used in locations where bank or shoreline erosion has resulted in: (1) the release of sediment exceeding that generated by natural processes; (2) unstable road, trail, pathway, or levee structures; (3) erosion around a culvert or bridge abutments; and (4) major environmental or structural damage. Stabilization methods include the installation of log crib walls, replacing existing rip-rap, extending rip-rap sections, upland and riparian vegetation planting, and other bio-engineering techniques.

Mechanized equipment, including excavator, backhoe, ten-wheel dump truck, and soil compactors, will operate mostly on existing roads and levees avoiding wetted channels or waterbodies. These activities, including the potential effects to upland, riparian, or wetland vegetation, will have temporary disturbance impacts ranging from 0.0001 acres to 0.09 acres per project (mean per bank stabilization = 0.021 acres). Permanent effects to waterbodies and adjacent uplands range from 0.0001 acres to 0.09 acres per project (mean per bank stabilization = 0.021 acres). Project duration ranges from one to eight days. Within Region 2, the expected frequency of this activity type is approximately three to four stabilization projects per year. The total anticipated effect for five years ranges from 0.0012 – 1.48 acres of temporary impact and

0.0012 – 1.48 acres of permanent impact to aquatic and terrestrial habitats. Overall, total anticipated effect for ten years ranges from 0.0025 – 2.95 acres of temporary impact and 0.0025 – 2.95 acres of permanent impact to aquatic and terrestrial habitats.

*Maintenance and Installation of Spring Boxes:*

Spring box repairs include the maintenance of existing wood, metal, and slotted vertically placed collector pipe located to collect water in a seep or spring. The placement of new spring boxes mostly consists of installing slotted vertical collector pipe within these waterbody types. Spring box maintenance and development may also include the installation or repair of above or underground pipelines for conveying water from these water sources to alternative locations, including water tanks or troughs in conjunction with improving the distribution of livestock. Whenever possible, pipelines will be installed in existing roads and trails. All troughs will have escape ramps for wildlife.

Mechanized equipment, including excavator, backhoe, ten-wheel dump truck, and small trucks, will operate mostly on existing roads, trails, levees, and disturbed areas. Cross country access will be minimized to avoid sensitive habitats and will be mostly restricted to open grasslands. These activities, including the potential effects to upland, riparian, or wetland vegetation, will have temporary disturbance impacts ranging from 0.0001 acres to 0.0016 acres per project (mean per spring box = 0.0006 acres). Permanent effects to waterbodies and adjacent uplands range from 0.005 acres to 0.01 acres per project (mean per spring box = 0.0006 acres). Project duration ranges from one to seven days. Within Region 2, the expected frequency of this activity type is approximately four spring boxes per year. The total anticipated effect for five years ranges from 0.0016 – 0.032 acres of temporary impact and 0.080 – 0.20 acres of permanent impact to aquatic and terrestrial habitats. Overall, total anticipated effect for ten years ranges from 0.0032 – 0.064 acres of temporary impact and 0.16 – 0.40 acres of permanent impact to aquatic and terrestrial habitats.

*Maintenance Dredging of Silt Basins, Ponds, and Lakes:*

Maintenance dredging would occur in silt basins, ponds, lakes, and muted tidal wetlands to restore silt capacity and open water habitat for listed and/or aquatic species. Sediment removal may also incorporate design features to improve flow to and from receiving waters.

Mechanized equipment including excavator, backhoe, ten-wheel dump truck, and small trucks, will operate mostly on existing roads, trails, levees, and disturbed areas. Cross country access will be minimized to avoid sensitive habitats and will be mostly restricted to open grasslands. These activities, including the potential effects to upland, riparian, or wetland vegetation, have temporary disturbance impacts ranging from 0.014 acres to 0.03 acres per project (mean per dredging = 0.026 acres). Project duration ranges from one to seven days. Within Region 2, the expected frequency of this activity type is approximately seven to eight dredging projects per year. The total anticipated effect for five years ranges from 0.44 – 1.17 acres of temporary impact to aquatic habitats. Overall, total anticipated effect for ten years ranges from 0.87– 2.34 acres of temporary impact to aquatic habitat.

*Maintenance of Existing Recreational-Shoreline Facilities:*

Maintenance to existing recreational facilities would include repairs and/or replacement of docks, fishing piers, boat launches, marsh boardwalks and overlooks. The maintenance and replacement of these structures will preserve public access and ensure public safety. Non-toxic materials will be used in all repairs and replacement structures.

Mechanized equipment, including excavator, backhoe, crane, and ten-wheel dump truck, will access the project sites and operate mostly on existing roads and levees avoiding wetted channels or waterbodies. Small water craft could also be used in open water to provide access and conduct repairs. These activities, including the potential effects to upland, riparian, or wetland vegetation, will have temporary disturbance impacts ranging from 0.005 acres to 0.02 acres per project (mean per shoreline facility = 0.01 acres). Permanent effects to waterbodies and adjacent uplands range from 0.005 acres to 0.02 acres per project (mean per shoreline facility = 0.01 acres). Project duration ranges from five to twenty days. Within Region 2, the expected frequency of this activity type is approximately one to two shoreline projects per year. The total anticipated effect for five years ranges from 0.022 – 0.18 acres of temporary impact and 0.022 – 0.18 acres of permanent impact to aquatic and terrestrial habitats. Overall, total anticipated effect for ten years ranges from 0.044 – 0.35 acres of temporary impact and 0.044 – 0.35 acres of permanent impact to aquatic and terrestrial habitats.

### *Removal of Hazardous Man-made Structures:*

Abandoned structures acting as a barrier to fish and wildlife movements or hazards to public safety will be removed from various waterbodies including streams, ponds, lakes, tidal channels, estuaries, and bay waters. If possible, structures will be removed in their entirety. Excavated and disturbed areas will be restored following removal of objects.

Mechanized equipment, including excavator, backhoe, crane, ten-wheel dump truck, four wheel drive trucks, and all-terrain vehicles (ATV's), will access the project sites and operate mostly on existing roads and levees avoiding wetted channels or waterbodies. Various water craft could also be used in open water to provide access and remove objects. These activities, including the potential effects to upland, riparian, or wetland vegetation, will have minimal temporary disturbance impacts and un-measurable permanent effects to waterbodies and adjacent uplands. Project duration ranges from one half day to ten days. This activity type will be conducted as needed. Overall, for a five and ten year period, this activity is anticipated to have minimal adverse effect to various waterbodies and adjacent uplands.

### *Removal of Vessels:*

Abandoned vessels acting as a barrier to fish and wildlife movements or hazards to navigation or public safety will be removed from various waterbodies including streams, ponds, lakes, tidal channels, estuaries, and bay waters. If possible, structures will be removed in their entirety. Excavated and disturbed areas will be restored following removal of objects.

Mechanized equipment, including excavator, backhoe, crane, ten-wheel dump truck, four wheel drive trucks, and ATV's, will access the project sites and operate mostly on existing roads and levees avoiding wetted channels or waterbodies. Various water craft would be used in open water to provide access and remove objects. These activities, including the potential effects to upland, riparian, or wetland vegetation, will have minimal temporary disturbance impacts and un-measurable permanent effects to waterbodies and adjacent uplands. Project duration ranges from one half day to ten days. This activity type will be conducted as needed. Overall, for a five and ten year period, this activity is anticipated to have a minimal adverse effect to various waterbodies and adjacent uplands.



### *Lentic, Lotic, and Tidal Restoration:*

The District will restore various water-based ecosystems, including lentic, lotic, and tidal habitat. Restoration activities will focus on enhancement and/or creation of these aquatic ecosystems, with the primary objective to promote the conservation and recovery of state and federally listed species.

#### Lentic Waterbody (Pond) Restoration

Pond restoration activities would include the repair, maintenance, and restoration of man-made lentic waterbodies. These ponds provide water for livestock and support a variety of taxa including California tiger salamander and California red-legged frog. Projects will be designed to enhance aquatic habitat for wildlife, reduce erosion and sedimentation to receiving waters, and improve livestock water availability and grazing distribution. Activities could include the reconstruction of failed ponds, removal of sediments or de-siltation, and minor modifications of existing ponds to restore the original capacity and inundation period, repair and/or replacement of structural components such as spillways, overflow discharge pipes, earthen dam and embankment stabilization; removal of man-made obstructions or debris, control of noxious weeds, establishment of native vegetation, and control of non-native predators such as bullfrogs (*Rana catesbeiana*), predatory centrarchids, catfish, and *Gambusia spp.* Exotic predator control may involve the de-watering or draining of the pond.

Mechanized equipment, including excavator, backhoe, ten-wheel dump truck, four wheel drive trucks, soil compacters, and ATV's, will access the project sites and typically operate on existing roads and earthen dam levees avoiding wetted channels. The implementation of these activities will mostly be temporary effects to upland, riparian, or wetland vegetation and will have minimal permanent impact. The size of these waterbodies is highly variable. Project duration ranges from four to twenty days. Overall, for a five year period, the total anticipated lentic restoration projects range between six to 20 pond sites within the distributional range of these species. Subsequent to the initial five year period, six to 20 additional pond sites will be identified for potential restoration.

## Stream (Lotic Waterbody) Restoration

Stream restoration activities would involve the enhancement or restoration of ephemeral, intermittent, or perennial streams and riparian corridors to improve habitat characteristics for listed and other native species. These activities will incorporate hydrologic, hydraulic, biological, and geomorphic processes. The restoration projects are designed to enhance stream function, promote dynamic equilibrium, reduce erosion, improve water quality to receiving waters, and improve aquatic habitat characteristics and/or riparian vegetative structure within the restored stream reach sites.

Installation of in-stream structures to stabilize and protect degraded streambanks could include using boulder riprap, boulder wing deflectors, rock weirs, root wad deflectors, log cribbing, live vegetated crib walls, tree or native material revetment, brush mattresses, and native re-vegetation. Modification could include, but not be limited to, changes in gradient, sinuosity, channel slope and type, cross-section and flood plain profile, and bankside vegetation. To the extent practicable, invasive noxious weeds will be controlled or removed. Appropriate native vegetation will be used for riparian restoration or for replanting exposed banks in a way that will replicate the existing biological conditions to stream reach corridor sites that support listed species.

Mechanized equipment, including excavator, backhoe, crane, ten-wheel dump truck, four wheel drive trucks, soil compactors, and ATV's, will access the project sites and operate mostly on existing roads, trails, and levees avoiding wetted channels or waterbodies. The implementation of these activities will result in mostly temporary effects to upland, riparian, wetland vegetation, stream substrate and bank, but will have minimal permanent impact. The size of these waterbodies is highly variable and project duration ranges from four to sixty days. Overall, for a five year period, the total anticipated lotic restoration projects range between four to six stream reach sites within the distributional range of these species. Subsequent to the initial five year period, two to four additional stream reach sites will be identified for potential restoration.

## Tidal Emergent Wetland Restoration

Wetland restoration activities would involve restoration and enhancement efforts to improve the habitat quality of tidal emergent wetlands or shorelines. This may include various restoration

activities in tidal flats and wetlands, diked baylands, and adjacent transitional upland habitats. These tidal wetland ecosystems provide habitat for giant garter snake, Ridgway's rail, and salt marsh harvest mouse.

Modifications could include, but not be limited to, changes in tidal action, flood plain profile, and vegetation types in degraded wetland areas. To the extent practicable, this will include the control of non-native species and predators in tidal wetlands and/or adjacent transitional upland habitats. Invasive noxious plant species will be controlled or removed. Target species would include, but not be limited to, iceplant (*Carpobrotus edulis*) and its hybrids, birdsfoot trefoil (*Lotus corniculatus*), broadleaf pepperweed (*Lepidium latifolium*), and Mediterranean saltwort (*Salsola soda*). Exposed wetland areas will be replanted with the appropriate native vegetation and species composition and density will be determined using reference sites of other functional wetlands with similar profiles dominated by native vegetation types. Non-native predator management will mostly focus on feral cats (*Felis silvestris catus*), non-native red fox (*Vulpes vulpes*), Norway rat (*Rattus norvegicus*), and black rat (*Rattus rattus*) removal and control to reduce predation events to giant garter snake, Ridgway's rail, and salt marsh harvest mouse.

Mechanized equipment, including excavator, backhoe, crane, ten-wheel dump truck, four wheel drive trucks, soil compactors, and ATV's, will access the project sites and operate mostly on existing roads and levees avoiding wetted channels or waterbodies. The implementation of these activities will result in mostly temporary effects to upland and wetland vegetation, or tidal substrate, and will have minimal permanent impact. The size of these waterbodies is highly variable and project duration can range from a few days to several weeks. The anticipated tidal wetland restoration projects may include, but not be limited to, the removal of non-native vegetation, the removal of man-made debris or hazardous materials, and the re-establishment of native tidal and high marsh vegetation to enhance habitat conditions for giant garter snake, Ridgway's rail, and the salt marsh harvest mouse. Overall, for a five year period, the total anticipated tidal restoration projects range between two to four sites within the distributional range of these species. Subsequent to the initial five year period, additional tidal wetland sites will be identified for potential restoration.

The District's covered routine maintenance activities would result in the repair, maintenance, and restoration of suitable aquatic habitat, riparian habitat, tidal shoreline, and upland habitat for state

and federally-listed species, resulting in net environmental benefits to listed species as well as non-listed native species. The proposed conservation practices are designed to control erosion, reduce sedimentation, restore native vegetation, restore pond habitat, improve the quality of stream and riparian habitat, and maintain tidal wetlands. All of these actions would benefit listed species and their habitats in the long-term.

However, the routine maintenance project activities could potentially result in adverse effects to state and federally listed species. As discussed, this includes temporary and permanent effects to natural land cover, affecting aquatic habitat and adjacent terrestrial uplands. To quantify effect, the minimum and maximum range of impact and the mean for each routine maintenance project type was identified to determine potential temporary and permanent impacts associated with each project type for a five period.

Direct impacts are defined as ground-disturbing activities or projects that remove habitat for covered species or directly affect an individual species. Direct impacts can be either permanent or temporary. Examples of activities resulting in permanent wetland impacts include installing hardscape (i.e. rip-rap along shoreline or stream channels), placing new culverts or fords in a channel, constructing a new bridge over a channel, or reducing wetland complexity (e.g., removing pools). Temporary impacts are defined as any impact on vegetation or habitat that does not result in permanent habitat removal. Temporary impacts that affect natural land cover are limited in duration, and most sites return to their preexisting conditions within a year. However, woody vegetation often requires two years of regrowth to establish comparable cover. This extended temporary impact is limited to a few activities, a small fraction of project sites, and not likely to adversely affect listed species. Examples of temporary impacts include removal of wetland, riparian, or terrestrial vegetation to the extent that natural land cover habitat is affected and other actions that temporarily reduce stream or wetland function and habitat value (e.g., dewatering). Actual wetland impacts may be somewhat lower than those calculated because of flexibility in implementing avoidance measures (e.g., building clear-span bridges to avoid streams, building in sites where no riparian vegetation exists). Considering that the vast majority of covered projects involve the maintenance of existing structures, most of the effects are anticipated to be temporary impacts to aquatic and adjacent terrestrial habitats.

To avoid and minimize adverse impacts to listed species, aquatic resources, and affected habitat, the District will implement the General Avoidance and Minimization Measures, Project Specific Best Management Practices (BMPs) and Thresholds, and Species Specific Conservation Measures listed below.

### **General Avoidance and Minimization Measures**

1. Project activities will be restricted to the minimum area necessary. Prior to start of work, project boundaries and access routes will be clearly demarcated to prevent work vehicles from straying into adjacent habitat.
2. An approved biological monitor will remain on-site during all construction activities that may result in take of federally and state listed species. The approved biological monitor(s) will be given the authority to stop any work that may result in the take of listed species.
3. Preconstruction surveys for listed species will be performed immediately prior to groundbreaking activities. Surveys will be conducted by approved biologists. If at any point, construction activities cease for more than five consecutive days, additional preconstruction surveys will be conducted prior to the resumption of work.
4. Prior to the start of each work day, an approved biologist will check under construction equipment, project vehicles, and their tires to ensure no listed species are utilizing the equipment as temporary shelter.
5. All trash and debris within the work area will be placed in containers with secure lids before the end of each work day in order to reduce the likelihood of entering nearby waterbodies and attracting predators to the site. Containers will be emptied as necessary to prevent trash overflow onto the site and all rubbish will be disposed of at an appropriate off-site location.
6. The District will ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible. When feasible, invasive exotic plants in the project areas will be removed.
7. If herbicides are needed, they will be used according to their label instructions.

8. When necessary to avoid and minimize disturbance and maintain down stream flow, water will be temporarily diverted around the work area using sand bag coffer-dams, hoses, and pumps.
9. If a work site is to be temporarily de-watered by pumping, intakes will be completely screened with wire mesh not larger than 2.5 millimeters or 3/32 inch. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate.
10. Pumps will be placed in a perforated intake basin to allow water to be drawn into the pump to protect and ensure aquatic organisms are not pulled into the pump.
11. An approved biologist will permanently remove, from within the project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes, to the maximum extent possible. The applicant will have the responsibility to ensure that their activities are in compliance with the California Fish and Game Code.
12. Whenever feasible, the District will implement the Best Management Practices (BMPs) identified in the California's Salmonid Stream Habitat Restoration Manual and the Federal Interagency Stream Corridor Restoration Manual.
13. All District projects are reviewed by qualified Stewardship staff who will work directly with Operations staff to identify project specific BMPs and develop the appropriate protective guidelines for each project. An approved biologist familiar with sensitive species will closely monitor each project.
14. No routine maintenance activity will be conducted that substantially disrupts the movements of aquatic indigenous life.
15. Work within listed species habitat (lentic and lotic waterbodies) will be performed only between August 1 and October 31 or under dry site conditions and minimize adverse impacts to fish and wildlife resources and their habitats. However, debris removal from culverts immediately necessary to prevent flooding would be conducted at any time.

16. Work within tidal emergent wetlands, the San Francisco Bay and/or the Delta would be conducted between August 1 and January 31.
17. Work within non-listed species habitat (lentic and lotic waterbodies) will be performed between April 15 and October 31. However, debris removal from culverts immediately necessary to prevent flooding would be conducted at any time.
18. To the maximum extent feasible, debris removal during winter and spring to unclog culverts, etc. will be performed by hand crews or by the use of trucks with winches, and/or by backhoes operated from the top of the bank.
19. As much as possible, the District will avoid the removal of large woody riparian vegetation and remove only the minimum necessary to complete the project.
20. Woody debris, which does not cause a problem of bank instability, flooding, or culvert blockage, will be left in place to provide in-stream cover and habitat for aquatic species.
21. To the extent possible, the District will avoid the use of heavy mechanized equipment in waterways, streams, ponds, and lakes.
22. To the extent possible, no heavy mechanized equipment will operate in standing or flowing water and disturbance in stream channels will be minimized as much as possible.
23. The District will avoid using heavy equipment in areas where hand tools or light equipment are capable of performing the task.
24. Whenever feasible, the District will use rubber-tired vehicles as opposed to track mounted equipment to avoid soil compaction and disturbance.
25. New concrete will not be placed or poured on-site in a location that may come into contact with any natural waterbodies.
26. Any concrete pouring will be isolated from all natural waterbodies through appropriate wrapping or water barrier implements.
27. Prior to work, all equipment will be inspected for fuel, oil, and hydraulic leaks and will be repaired if necessary.

28. At the work site, fueling of equipment and vehicles will only occur in upland areas and, where feasible, at a minimum of 100 feet from open water.
29. Vehicles will be parked on pavement, existing roads, and previously disturbed areas to the maximum extent feasible.
30. To avoid and minimize disturbance, the District will plant riparian vegetation by hand or with a rubber-tired backhoe from above the top of bank.
31. Erosion control materials that use plastic or synthetic mono-filament netting will not be used within the action area in order to prevent listed species from becoming entangled, trapped or injured. This includes products that use photodegradable or biodegradable synthetic netting, which can take a full calendar year or more to decompose. Acceptable materials include natural fibers such as jute, coconut, twine or other similar fibers.

### **Project Specific Best Management Practices (BMPs) and Thresholds**

#### *Culvert Repair, Maintenance, Replacement, Upgrade, and Installation:*

1. Whenever feasible, the District will replace old metal-galvanized culverts with modern plastic culverts. This will minimize the need for follow up maintenance and stream disturbance.
2. Whenever feasible, the District will install replacement culverts large enough to accommodate anticipated 25-year frequency storm events. This will minimize the need for follow up maintenance and stream disturbance.
3. Replacement of culverts will be installed at the existing grade to maintain natural stream gradient and minimize under cutting and erosion.
4. Whenever feasible, the District will remove culverts to restore and enhance the natural stream corridor and riparian vegetation.



5. Whenever feasible, the District will remove culverts and replace them with clear-span bridges or armored articulated fords. This will re-establish typical stream flow and reduce erosion.
6. To stabilize culverts, the District will construct headwalls or discharge end splash pads, and will install armoring with porous materials or use other techniques that allow plant growth and avoid the permanent elimination of stream habitat.

*Maintenance of Sediment-Debris from Culverts:*

1. Whenever feasible, debris will be removed from culverts using equipment operated from the top of banks and levees, or by hand crews.
2. Woody debris that does not block flow will be left in place to provide habitat for fish and wildlife.
3. The clearing of culverts consisting of the targeted removal woody debris, sediments, and man-made objects etc. that demands immediate action to prevent flooding, property damage, or maintain access to essential public services would be conducted at any time.
4. Targeted and localized sediment removal will occur in limited areas that will not exceed 500 linear feet.
5. Threshold for non-reportable sediment-debris removal from culverts: Projects less than 140 sq ft. (0.003 acres) removing less than 10 CY would be non-reportable. Debris removal immediately necessary to prevent flooding, property damage, and minimize erosion will be conducted at any time. During winter and spring work will be performed by hand crews, by the use of trucks with winches, and/or by backhoes operated from top of the bank. Woody debris which does not cause a problem of bank instability, flooding, or culvert blockage will be left in place to provide instream cover and habitat for aquatic species.

*Installation of New Culvert Head and Tailwalls and Energy Dissipaters:*

1. New rock head, tail walls and/or energy dissipaters will be installed to stabilize the streambank and prevent head and/or down cutting.

*Natural stream crossings (fords):*

1. Natural stream crossings are annually evaluated District-wide to determine the need for maintenance.
2. Minimal grading or debris removal will be performed to make the crossing passable.
3. Stream gravel and sediments will be left within the dry portion of the stream channel rather than moved to upland areas.
4. Natural crossings (which require less intensive maintenance) will be preferred and used where feasible.

*Bank Stabilization and Erosion Control:*

1. Whenever feasible the District will use bio-engineering techniques, such as planting riparian woody vegetation and installing willow waddles and mattresses, log crib-walls, log and stump deflectors, or vortex weirs to stabilize banks and reduce erosion.
2. Where appropriate jute netting or other erosion control fabrics will be used to provide protection until adequate plant growth can provide permanent protection.
3. Where appropriate broadcast and/or hydro-seeding (native mix) and planting of willow, maple, alder, and other native riparian woody vegetation will be carried out to stabilize banks and prevent erosion.
4. The District will request the use of more hardened bank stabilization techniques, if the use of bio-engineered techniques is considered infeasible at a project site.
5. When maintaining shoreline levees and armored embankments, work will be done during low tide to the greatest extent possible to minimize potential for sediment discharge to bay water.
6. Repair and stabilization of existing armored shoreline banks and levees will not exceed 500 linear feet total or 12,500 sq ft. (assuming 25 ft. width) per year at each District shoreline unit.

7. Repair and stabilization of existing unarmored shoreline banks and levees will not exceed 160 linear feet total or 4,000 sq ft. (assuming 25 ft. width) per year at each District shoreline unit.

*Routine Maintenance Dredging of Ponds, Lakes and Silt Basins:*

1. When feasible the work will be performed in dry conditions and above water level. Otherwise, floating open water turbidity curtains will be used to contain sediment.
2. Other erosion, sediment, and turbidity control measures and procedures may be implemented to contain sediments, minimize siltation, and prevent downstream turbidity.
3. Whenever feasible dredging will be done with an excavator from the top of bank.
4. All removed dredged sediments will be disposed of in the appropriate upland location(s).
5. Removal of riparian vegetation will be minimized during dredging operations.
6. To properly maintain existing silt basins, ponds, lakes, and other waterbodies, dredging of these basins will be limited to 600-700 CY of material as recommended by the Wildcat Creek Sediment Study, Hayward Shoreline Study, and Big Break Study. Dredging projects will not exceed 500 linear feet or 4,000 sq ft. (0.1 acres).

*Maintenance of Existing Recreational Shoreline Facilities:*

1. Whenever feasible, floating docks and gangways will utilize light transmitting materials or construction to reduce overwater shading.
2. Materials used in pile replacement and repair may include wood piles, pile wrap composed of polyvinyl chloride (PVC), wood pile stubs, or cylindrical steel connectors. After installation, divers attach a high density polyethylene wrap around the pile to protect the pile from physical damage, reduce ongoing exposure of chemically treated wood surface to the environment, protect the piles from boring marine organisms, and prolong the useful life of the pile.

*Proposed restoration and enhancement:*

While conducting routine maintenance, the District will incorporate an adaptive management strategy to improve existing conditions. Overall, implementing the above conservation measures reduces adverse effects to District lands and nearby waterbodies. The District will also restore and enhance existing ponds, streams, and other waterbodies and will focus on the enhancement and/or creation of these aquatic ecosystems, with the primary objective to promote the conservation and recovery of listed species. Restoration and enhancement will include, but not be limited to:

- Stream and pond restoration and creation for special status species and other aquatic species
- Removing instream man-made structures to restore the natural stream conditions
- Planting native riparian and wetland vegetation to improve water quality
- Controlling and removing non-native invasive species (i.e. bullfrogs, exotic fish, Chinese mitten crab etc.)
- Identifying and removing instream barriers to fish and other aquatic species
- Installing nest boxes for riparian bird species (i.e. wood ducks, tree swallows, and flycatchers)
- Removing non-native invasive vegetation to improve wetland and/or riparian habitat conditions
- Implement streambank bioengineering practices to reduce erosion and stabilize streambanks

*Aquatic Restoration and Enhancement:*

1. The preconstruction project list submitted by June 1<sup>st</sup> each year will include detailed descriptions and designs of proposed restoration projects for the upcoming year.
2. All restoration activities will have either: permanent beneficial effects to state and federally listed species; or at most, no permanent adverse effects (e.g. permanent effects to hydrology, water quality, or temperature in listed species habitat will be neutral to the species) to state and federally listed species.

*Pond Restoration and Enhancement:*

1. General pond restoration dredging will occur during dry site conditions, recognizing that certain sites conditions and/or years may require dewatering of ponds prior to dredging activities.
2. Stock ponds will only be dredged when dry and after determining that no California red-legged frogs and/or California tiger salamanders are present.
3. Wherever feasible, dredged ponds and earthen dams will be reconfigured to enhance the habitat for aquatic species.

### **Species Specific Conservation Measures**

#### *Alameda striped racer and giant garter snake*

1. Within potentially suitable Alameda striped racer habitat, construction activities will occur between June 15 - October 31, when the striped racers are more active, capable of escaping, and less likely to be impacted.
2. Disturbance activities in known or potential giant garter snake habitat or within 200 feet of habitat will be performed only between May 1 and October 1 to avoid potential impacts to this species.
3. No plastic mono-filament erosion control matting will be used for erosion control in Alameda striped racer or giant garter snake habitat.

#### *California red-legged frog and California tiger salamander*

1. Work within California red-legged frog habitat (lentic and lotic waterbodies) will be performed only between August 31 and October 31 or under dry site conditions and will minimize potential adverse impacts to aquatic habitats.
2. Work within California tiger salamander aquatic habitat will be performed only between August 31 and October 31 or under dry site conditions and will minimize potential adverse impacts to aquatic habitats.

#### *Foothill yellow-legged frog and western pond turtle*

1. Work within foothill yellow-legged frog aquatic habitat will be performed only

between August 1 and October 31 or under dry site conditions and will minimize potential adverse impacts to aquatic habitats

2. Work within western pond turtle frog aquatic habitat will be performed only between August 1 and October 31 or under dry site conditions and will minimize potential adverse impacts to aquatic habitats

*Shoreline species: California Ridgway's rail, California black rail, western snowy plover, California least tern, and salt marsh harvest mouse*

1. Disturbance activities in known or potential Ridgway's rail, California black rail, western snowy plover, and/or California least tern habitat will be performed only during the non-nesting season between September 1 and January 31 to avoid potential impacts to these species.
2. To the extent possible, tidal and muted tidal pickleweed habitat will be avoided in known or potential salt marsh harvest mouse habitat.
3. No plastic mono-filament erosion control matting will be used for erosion control in salt marsh harvest mouse habitat.

*Fairy and tadpole shrimp*

1. Work within 250 feet of fairy and/or tadpole shrimp habitat will be performed only between August 1 and October 31 and under dry site conditions to minimize potential adverse impacts to aquatic habitats.

*Delta smelt, longfin smelt, green sturgeon, salmonids (i.e., steelhead and chinook salmon)*

1. Disturbance activities in known or potential delta smelt habitat will be performed only between August 1 and November 30 to avoid potential impacts to this species
2. Disturbance activities in known or potential longfin smelt habitat will be performed only between November 1 and January 31 to avoid potential impacts to this species
3. Disturbance activities in known or potential green sturgeon habitat will be performed only between July 1 and September 30 to avoid potential impacts to this species

4. Disturbance activities in known or potential salmonid habitat will be performed only between June 15 and October 15 to avoid potential impacts to this species

### **Proposed Restoration Activities**

The District will restore various water-based ecosystems, including lentic, lotic, and tidal habitat. Restoration activities will focus on enhancement and/or creation of these aquatic ecosystems, with the primary objective to promote the conservation and recovery of listed species. Restoring and/or creating permanent aquatic habitat will compensate for the small-scale temporary and permanent cumulative impacts associated with the various routine maintenance projects.

#### **Lentic Waterbody (Pond) Restoration**

Pond restoration activities would include the repair, maintenance, and restoration of man-made lentic waterbodies. These ponds provide water for livestock and support a variety of taxa including California tiger salamander and California red-legged frog. Projects will be designed to enhance aquatic habitat for wildlife, reduce erosion and sedimentation to receiving waters, and improve livestock water availability and grazing distribution. Activities could include the reconstruction of failed ponds, removal of sediments or de-siltation, and minor modifications of existing ponds to restore the original capacity and inundation period, repair and/or replacement of structural components such as spillways, overflow discharge pipes, earthen dam and embankment stabilization; removal of man-made obstructions or debris, control of noxious weeds, establishment of native vegetation, and control of non-native predators such as bullfrogs (*Rana catesbeiana*), predatory centrarchids, catfish, and *Gambusia spp.* Exotic predator control may involve the de-watering or draining of the pond.

Mechanized equipment, including excavator, backhoe, ten-wheel dump truck, four wheel drive trucks, soil compacters, and ATV's, will access the project sites and typically operate on existing roads and earthen dam levees avoiding wetted channels. The implementation of these activities will mostly be temporary effects to upland, riparian, or wetland vegetation and will have minimal permanent impact. The size of these waterbodies is highly variable. Project duration ranges from

four to twenty days. Overall, for a five year period, the total anticipated lentic restoration projects range between six to 20 pond sites within the distributional range of these species. Subsequent to the initial five year period, six to 20 additional pond sites will be identified for potential restoration.

#### Stream (Lotic Waterbody) Restoration

Stream restoration activities would involve the enhancement or restoration of ephemeral, intermittent, or perennial streams and riparian corridors to improve habitat characteristics for listed and other native species. These activities will incorporate hydrologic, hydraulic, biological, and geomorphic processes. The restoration projects are designed to enhance stream function, promote dynamic equilibrium, reduce erosion, improve water quality to receiving waters, and improve aquatic habitat characteristics and/or riparian vegetative structure within the restored stream reach sites.

Installation of in-stream structures to stabilize and protect degraded streambanks could include using boulder riprap, boulder wing deflectors, rock weirs, root wad deflectors, log cribbing, live vegetated crib walls, tree or native material revetment, brush mattresses, and native re-vegetation. Modification could include, but not be limited to, changes in gradient, sinuosity, channel slope and type, cross-section and flood plain profile, and bankside vegetation. To the extent practicable, invasive noxious weeds will be controlled or removed. Appropriate native vegetation will be used for riparian restoration or for replanting exposed banks in a way that will replicate the existing biological conditions ~~to~~of stream reach corridor sites that support listed species.

Mechanized equipment, including excavator, backhoe, crane, ten-wheel dump truck, four wheel drive trucks, soil compactors, and ATV's, will access the project sites and operate mostly on existing roads, trails, and levees avoiding wetted channels or waterbodies. The implementation of these activities will result in mostly temporary effects to upland, riparian, wetland vegetation, stream substrate and bank, but will have minimal permanent impact. The size of these waterbodies is highly variable and project duration ranges from four to sixty days. Overall, for a five year period, the total anticipated lotic restoration projects range between four to six stream



reach sites within the distributional range of these species. Subsequent to the initial five year period, two to four additional stream reach sites will be identified for potential restoration.

#### Tidal Emergent Wetland Restoration

Wetland restoration activities would involve restoration and enhancement efforts to improve the habitat quality of tidal emergent wetlands or shorelines. This may include various restoration activities in tidal flats and wetlands, diked baylands, and adjacent transitional upland habitats. These tidal wetland ecosystems provide habitat for giant garter snake, Ridgway's rail, and salt marsh harvest mouse.

Modifications could include, but not be limited to, changes in tidal action, flood plain profile, and vegetation types in degraded wetland areas. To the extent practicable, this will include the control of non-native species and predators in tidal wetlands and/or adjacent transitional upland habitats. Invasive noxious plant species will be controlled or removed. Target species would include, but not be limited to, iceplant (*Carpobrotus edulis*) and its hybrids, birdsfoot trefoil (*Lotus corniculatus*), broadleaf pepperweed (*Lepidium latifolium*), and Mediterranean saltwort (*Salsola soda*). Exposed wetland areas will be replanted with the appropriate native vegetation and species composition and density will be determined using reference sites of other functional wetlands with similar profiles dominated by native vegetation types. Non-native predator management will mostly focus on feral cats (*Felis silvestris catus*), non-native red fox (*Vulpes vulpes*), Norway rat (*Rattus norvegicus*), and black rat (*Rattus rattus*) removal and control to reduce predation events to giant garter snake, Ridgway's rail, and salt marsh harvest mouse.

Mechanized equipment, including excavator, backhoe, crane, ten-wheel dump truck, four wheel drive trucks, soil compactors, and ATV's, will access the project sites and operate mostly on existing roads and levees avoiding wetted channels or waterbodies. The implementation of these activities will result in mostly temporary effects to upland and wetland vegetation, or tidal substrate, and will have minimal permanent impact. The size of these waterbodies is highly variable and project duration can range from a few days to several weeks. The anticipated tidal wetland restoration projects may include, but not be limited to, the removal of non-native vegetation, the removal of man-made debris or hazardous materials, and the re-establishment of native tidal and high marsh vegetation to enhance habitat conditions for giant garter snake,

Ridgway's rail, and the salt marsh harvest mouse. Overall, for a five year period, the total anticipated tidal restoration projects range between two to four sites within the distributional range of these species. Subsequent to the initial five year period, additional tidal wetland sites will be identified for potential restoration.

### **Summary of Project Impacts**

The District's covered activities and routine maintenance projects include the replacement of existing structures and facilities, minor improvement projects, and the restoration of various waterbodies to enhance habitat for listed species. The covered activities consist of minor construction and the maintenance of existing structures or facilities that are mostly small in scale. The footprint of individual projects, except for restoration activities, is extremely small and typically does not exceed 2000 square feet or 0.05 acres. As previously described above, the majority of affected waterbodies occur within San Francisco Regional Water Quality Control Board Region 2. Consequently, the anticipated range of cumulative impacts (temporary and permanent) for a five year period is estimated to range from 0.752 acres to 8.77 acres of impact (Appendix Table 1).

### **Monitoring and Reporting**

A detailed annual preconstruction report of the proposed maintenance activities to be performed each year will be prepared and submitted by June 1<sup>st</sup> each year. The report will contain preliminary jurisdictional determinations for each of the proposed projects illustrating ordinary high water channel width, depth of streambed to ordinary high water, depth of streambed to top of bank, width at top of bank, stream type and stream gradient, high tide line elevation, high tide line to substrate, and extent of project activity in waters of the U.S. and waters of the State in relation to the dimensions of each proposed project (see Appendix project specific illustrations). Additionally, the tabular report will include the following for each project:

1. Project location
2. Clear project description-scope
3. Amount of wetland fill or fill of other waters
4. Amount of temporary and permanent impacts
5. Avoidance and minimization measures and best management practices

6. Detailed descriptions, designs, and performance criteria of proposed restoration projects for the upcoming year.

By February 15 of each year, the District will submit an annual report describing the activities performed the previous year and the resulting habitat disturbance. This report will include a description of the work performed, specifically noting any changes to proposed projects from what was outlined in the preconstruction project list. At a minimum, the annual report will include the following information for that year:

1. A description of activities/projects completed and their location;
2. The amount of wetland fill and/or other waters fill, temporary and permanent impacts associated with each project;
3. A description of the amount, type, and location of habitat restored or enhanced; Acreage of listed species habitat that was restored or enhanced and whether the permanent effects from the restoration to species habitat types will be beneficial or neutral; each listed species covered under the biological opinion will be addressed to insure species habitat disturbance can be tracked.
4. Pre and post-construction photographs for restoration projects will be submitted in the annual report until the restoration site meets its performance criteria.

After five years, the District will submit a summary report including the extent of permanent and temporary impacts to waters of the state and aquatic resources associated with the completed routine maintenance and restoration activities.

### **Other Regulatory Permits and Supporting Documents**

U.S. Army Corps of Engineers Regional General Permit (File Number 28902S) authorizes the District to conduct various routine maintenance activities.

U.S. Army Corps of Engineers (File Number 28902S) has determined that the District's proposed routine maintenance activities appear to be covered under the *U.S. Army Corps of Engineers Proposed Procedures for Permitting Projects that will Not Adversely Affect Selected Listed Species in California* (NLAA) consultation with the National Marine Fisheries Service (NMFS).

The Army Corps of Engineers' (File Number 28902S) has determined that the proposed activities associated with the Discharger's routine maintenance activities will not adversely impact any Essential Fish Habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act. Any proposed projects that may adversely impact EFH will require a separate Section 7 authorization in consultation with the National Marine Fisheries Service (NMFS) before work may be performed on those sites.

U.S. Army Corps of Engineers (File Number 28902S) has determined that the proposed project may affect federally-listed species and their designated critical habitat. Therefore, on June 28, 2017, the Corps initiated formal section 7 consultation with U.S. Fish and Wildlife Service pursuant to the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. §1531 *et seq.*) and the implementing regulations 50 C.F.R. §§ 402.13 and 402.14.

The East Bay Regional Park District prepared a Biological Assessment titled *East Bay Regional Park District Biological Assessment on the Effects of Routine Maintenance Activities on Fifteen Federally Listed Species* – Steven Bobzien and Courtney Wilson, East Bay Regional Park District, May 23, 2017

California Department of Fish and Wildlife Routine Maintenance Agreement - Streambed Alteration Agreement (Notification Number: 1600-2016-0269-R3), September 22, 2016

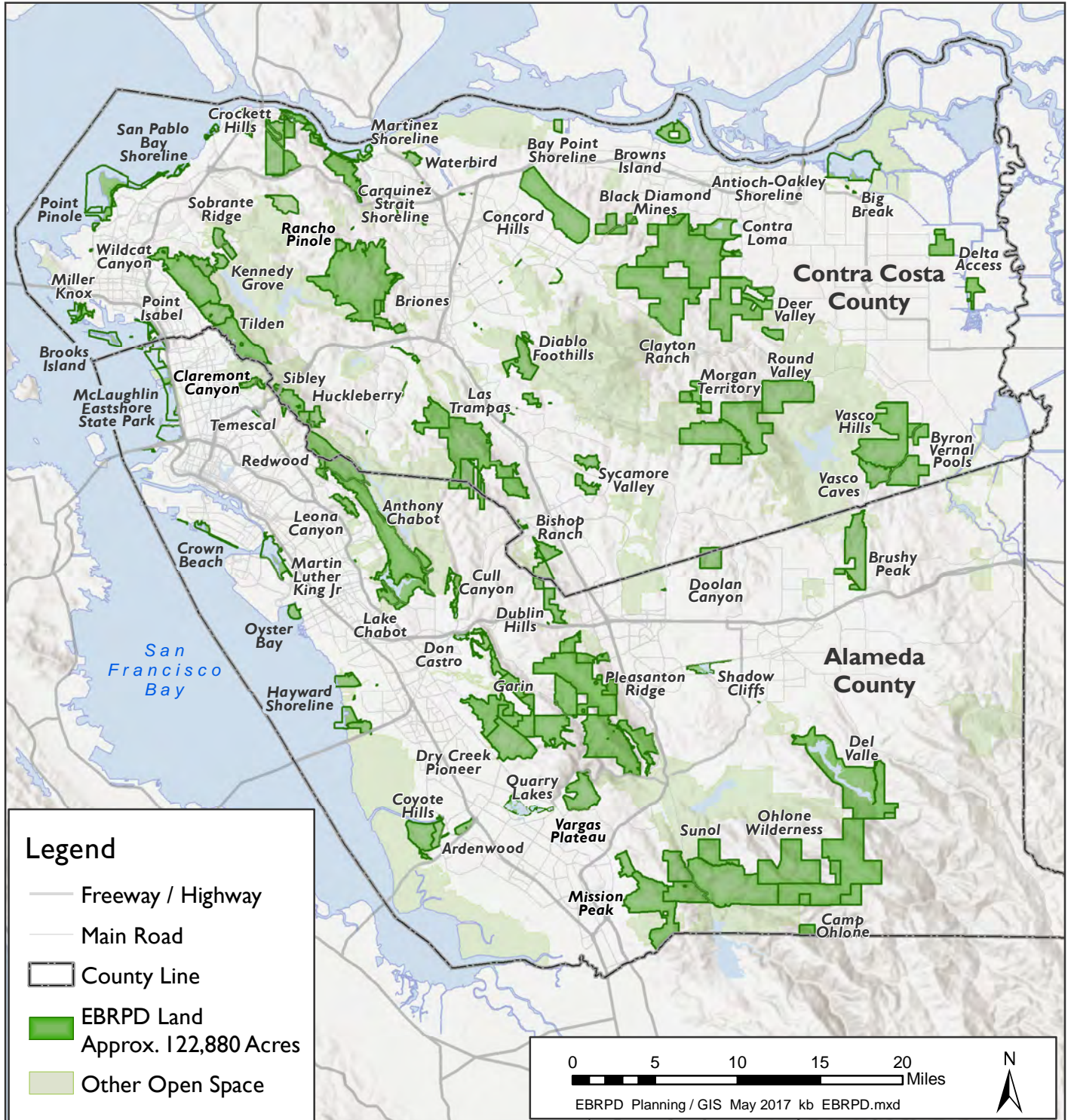
Bay Conservation and Development Commission, in progress

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- District Map
- Table 1: S.F. Bay Region 2 Routine Maintenance Projects Anticipated Range of Impacts
- Waterbody Atlas for East Bay Regional Park District
- Preliminary Jurisdictional Determination Sheets



# East Bay Regional Park District





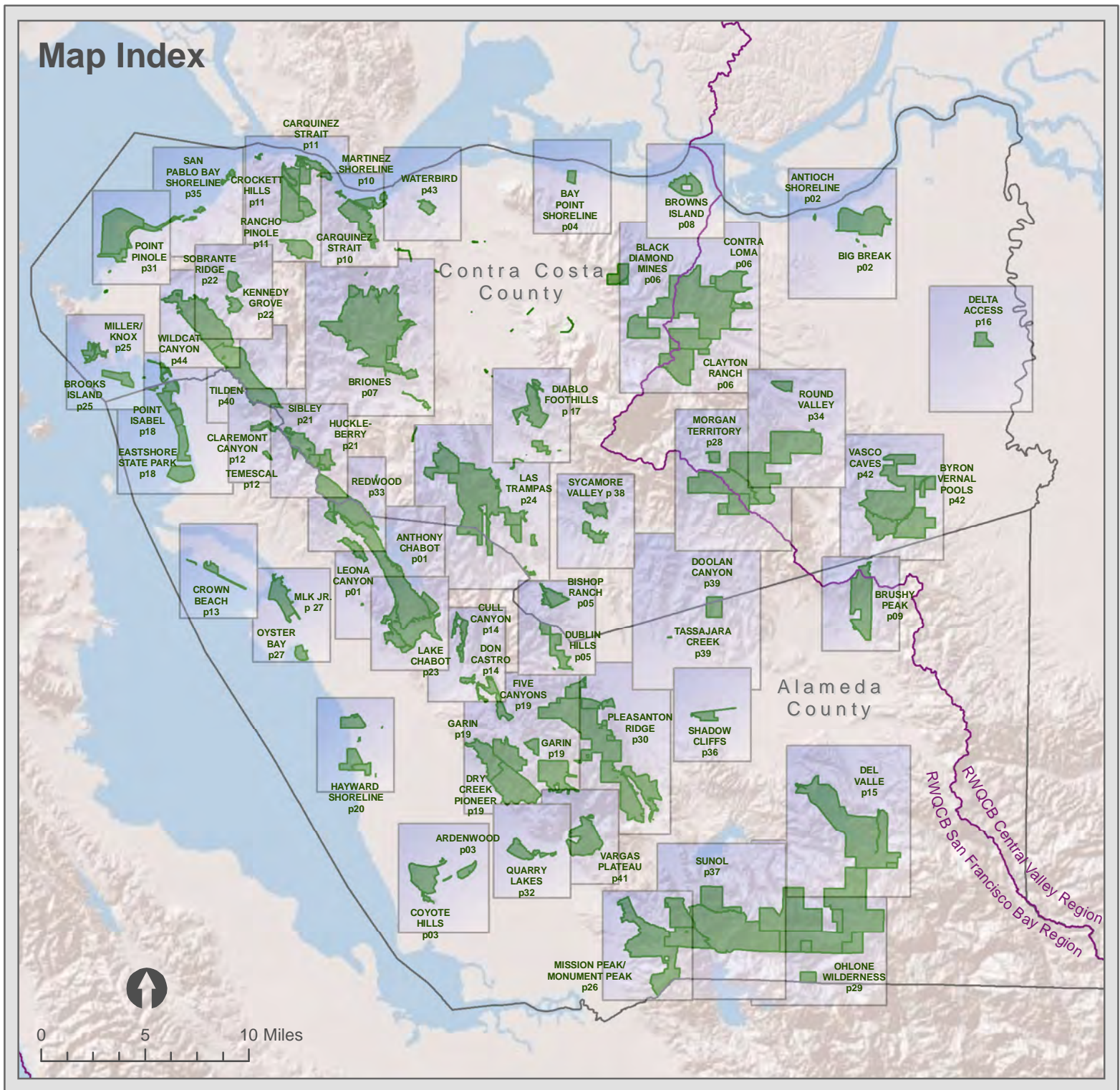


**Table 1: Region 2 - S.F. Bay Routine Maintenance Projects Anticipated (5 years) Range of Impacts**

Project Type	Minimum Temporary Impact (acres)	Maximum Temporary Impact (acres)	Minimum Permanent Impact (acres)	Maximum Permanent Impact (acres)
Replacing Same Size Culverts	0.00176	0.396	0	0
Upgrade Culvert	0.00352	0.792	0.00352	0.792
Install New Culverts	0.00528	0.2376	0.03432	0.26796
Clearing Culverts	0.00176	0.946	0	0
Culvert Head-Tailwalls	0.0176	0.066	0.0176	0.066
Install Energy Dissipaters	0.0044	0.088	0.0044	0.088
Installation of New Armored Fords	0.0352	0.1188	0.0352	0.1188
Maintenance of Existing Armored Fords	0.022	0.044	0	0
Maintenance and Installation of Bridges	0.00044	0.044	0	0
Streambank, Shoreline, and Levee Stabilization	0.00123	1.476	0.00123	1.476
Maintenance and Installation of Springboxes	0.0016	0.032	0.08	0.2
Maintenance Dredging of Waterbodies	0.4368	1.17	0	0
Maintenance of Shoreline Facilities	0.022	0.176	0.022	0.176
Removal of Hazardous Structures	0	0	0	0
Removal of Vessels	0	0	0	0
<i>Estimated Range of Impacts for Five (5) Years</i>	0.55359	5.5864	0.19827	3.18476



# Waterbody Atlas for East Bay Regional Park District



Prepared by Planning, Stewardship, & GIS Services  
March 2011

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Claremont Canyon .....12	Rancho Pinole.....11
Clayton Ranch.....06	Redwood.....33
Contra Loma .....06	Roberts .....33
Coyote Hills .....03	Round Valley .....34
Crockett Hills.....11	San Pablo Bay Shoreline .....35
Crown Beach.....13	Shadow Cliffs .....36
Cull Canyon .....14	Sibley .....21
Del Valle .....15	Sobrante Ridge .....22
Delta Access .....16	Sunol .....37
Diablo Foothills .....17	Sycamore Valley Open Space .....38
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Doolan Canyon .....39	Temescal .....12
Dublin Hills.....05	Tilden.....40
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Hayward Shoreline .....20	Wildcat Canyon .....44
Huckleberry .....21	

DATA SOURCES: Contra Costa County Department of Conservation and Development Creek and Drainage GIS Data, Oakland Museum of California Creek and Watershed GIS Data for Pleasanton, Dublin, and Western Alameda County, USGS National Hydrography Dataset, The Regional Water Quality Control Board Jurisdictional Boundary, and EBRPD GIS Data.



# Anthony Chabot & Leona Canyon







- Spring box
- Spring head
- Spring
- ⊗ Spring - Not Confirmed
- Streams and Creeks
- ▭ Lakes and Ponds

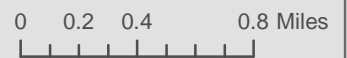
↑  
 0      0.4      0.8 Miles



March 2011

# Antioch Shoreline & Big Break Shoreline

-  Spring box
-  Spring - Not Confirmed
-  Spring head
-  Streams and Creeks
-  Spring
-  Lakes and Ponds





**COYOTE HILLS**

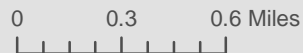
**ARDENWOOD**

San Francisco National Wildlife Refuge

March 2011

# Ardenwood & Coyote Hills

- ▣ Spring box
- Spring head
- Spring
- Streams and Creeks
- ▭ Lakes and Ponds
- ⊘ Spring - Not Confirmed



Suisun Bay

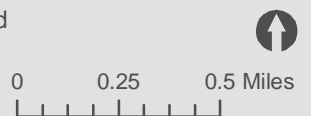
# BAY POINT WETLANDS



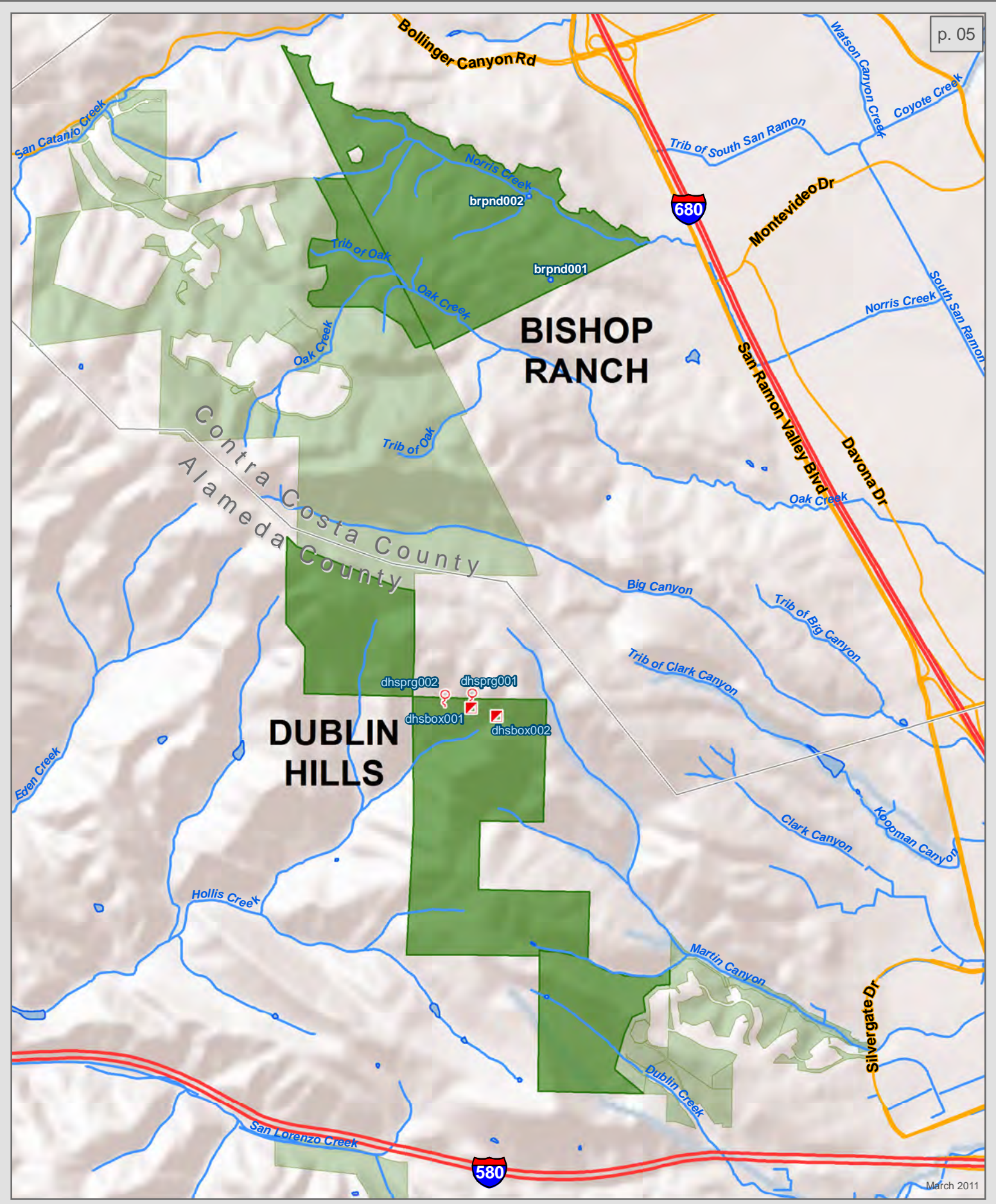
March 2011

## Bay Point Wetlands

- ▣ Spring box
- Spring head
- Spring
- ▣ Spring - Not Confirmed
- Streams and Creeks
- ▣ Lakes and Ponds




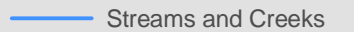

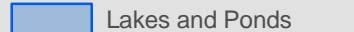


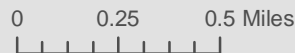


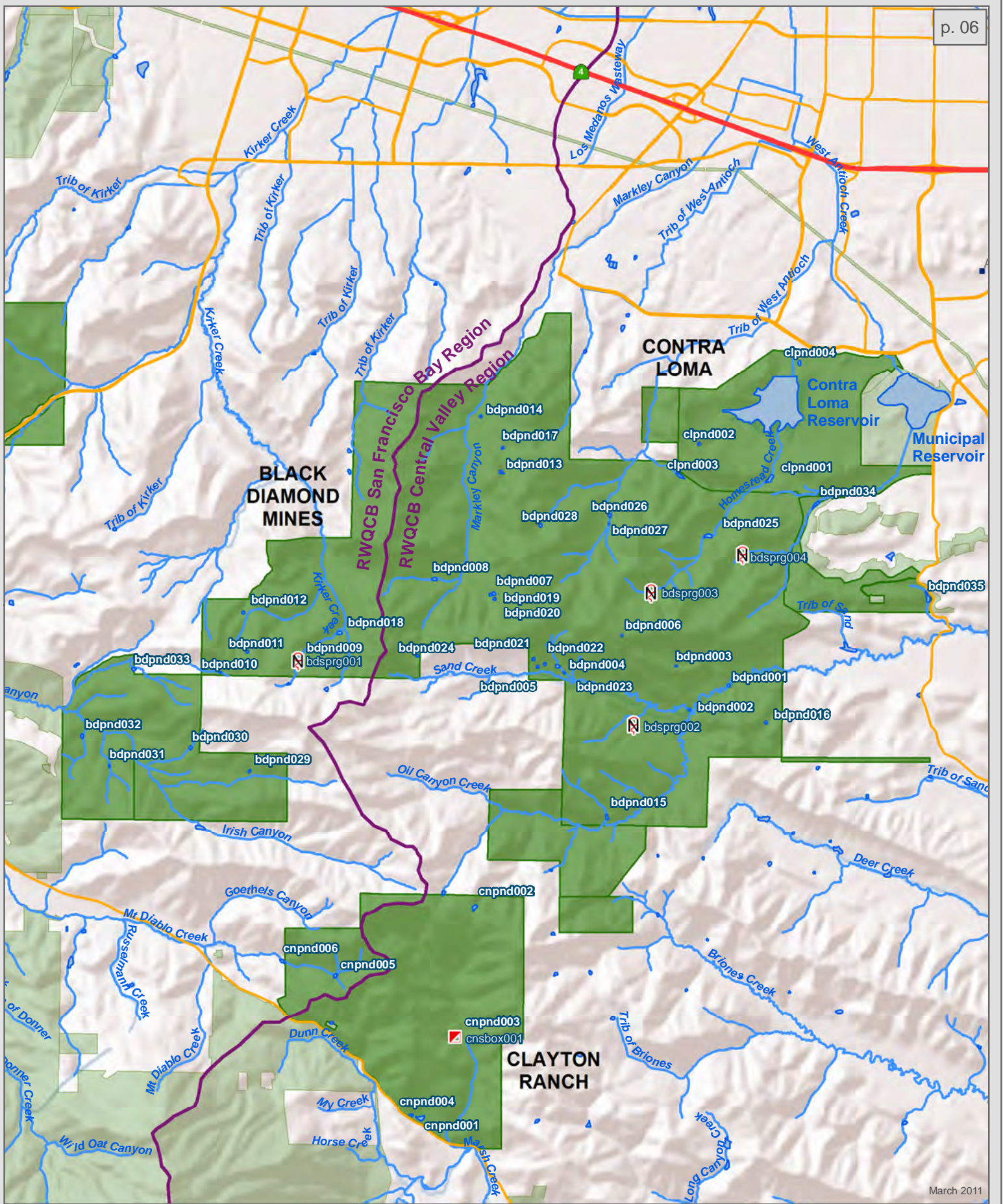


March 2011

# Bishop Ranch & Dublin Hills







-  Spring box
-  Spring - Not Confirmed
-  Spring head
-  Streams and Creeks
-  Spring
-  Lakes and Ponds



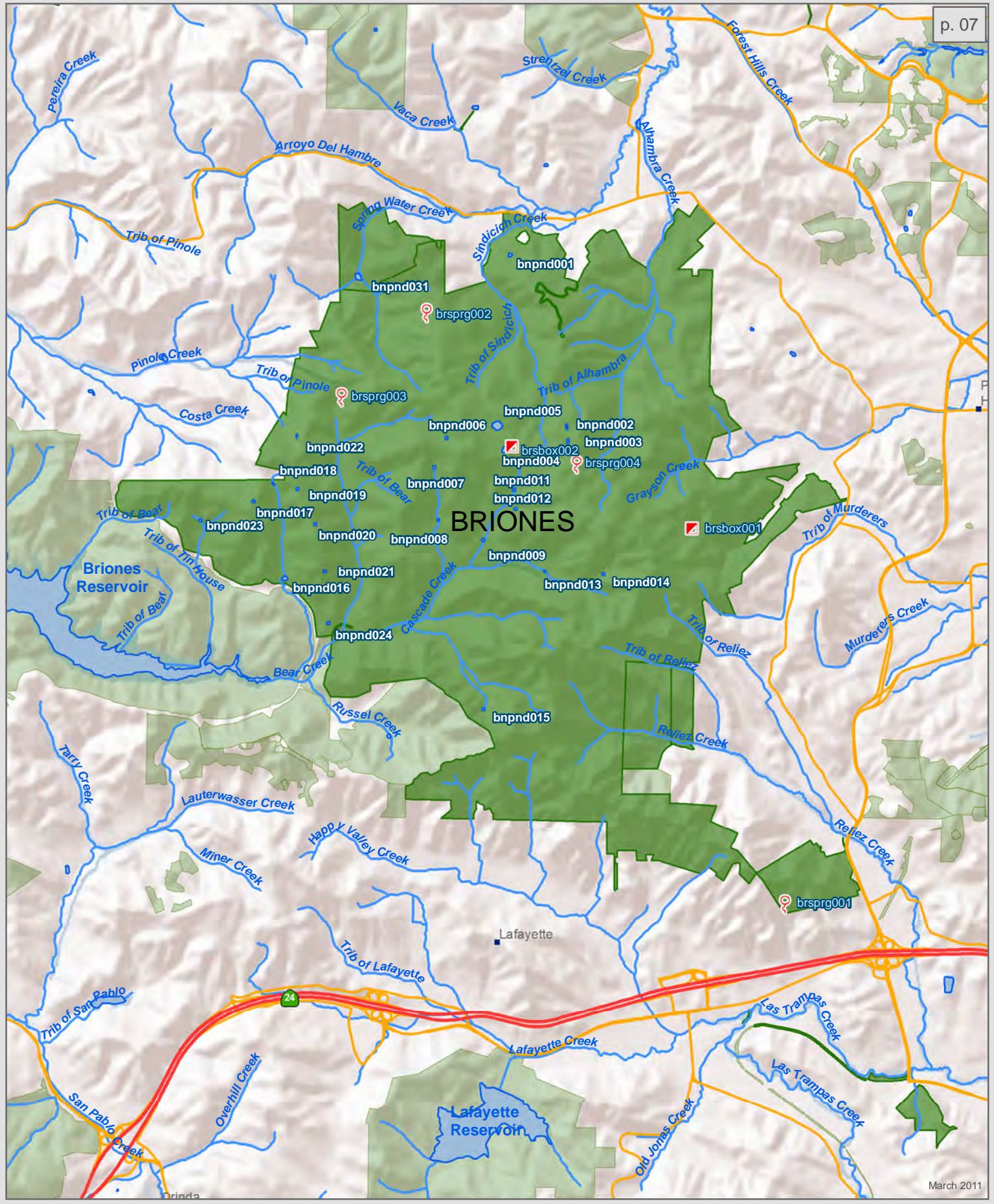


March 2011

# Black Diamond Mines, Clayton Ranch, & Contra Loma

-  Spring box
-  Spring head
-  Spring
-  Spring - Not Confirmed
-  Streams and Creeks
-  Lakes and Ponds





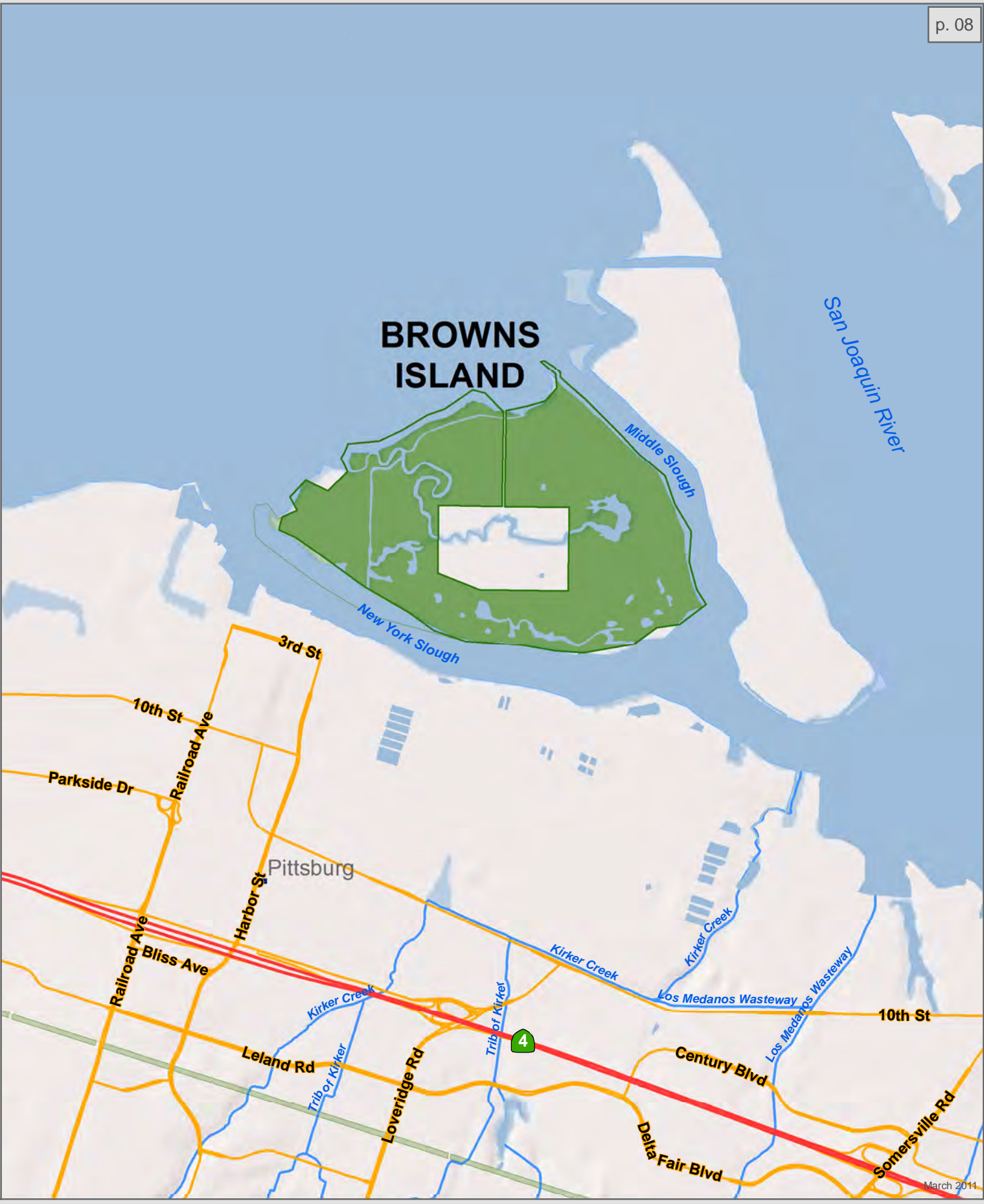
# BRIONES

# Briones

	Spring box		Spring - Not Confirmed
	Spring head		Streams and Creeks
	Spring		Lakes and Ponds







0 0.25 0.5 1 Miles

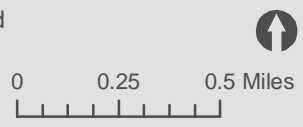
# BROWNS ISLAND

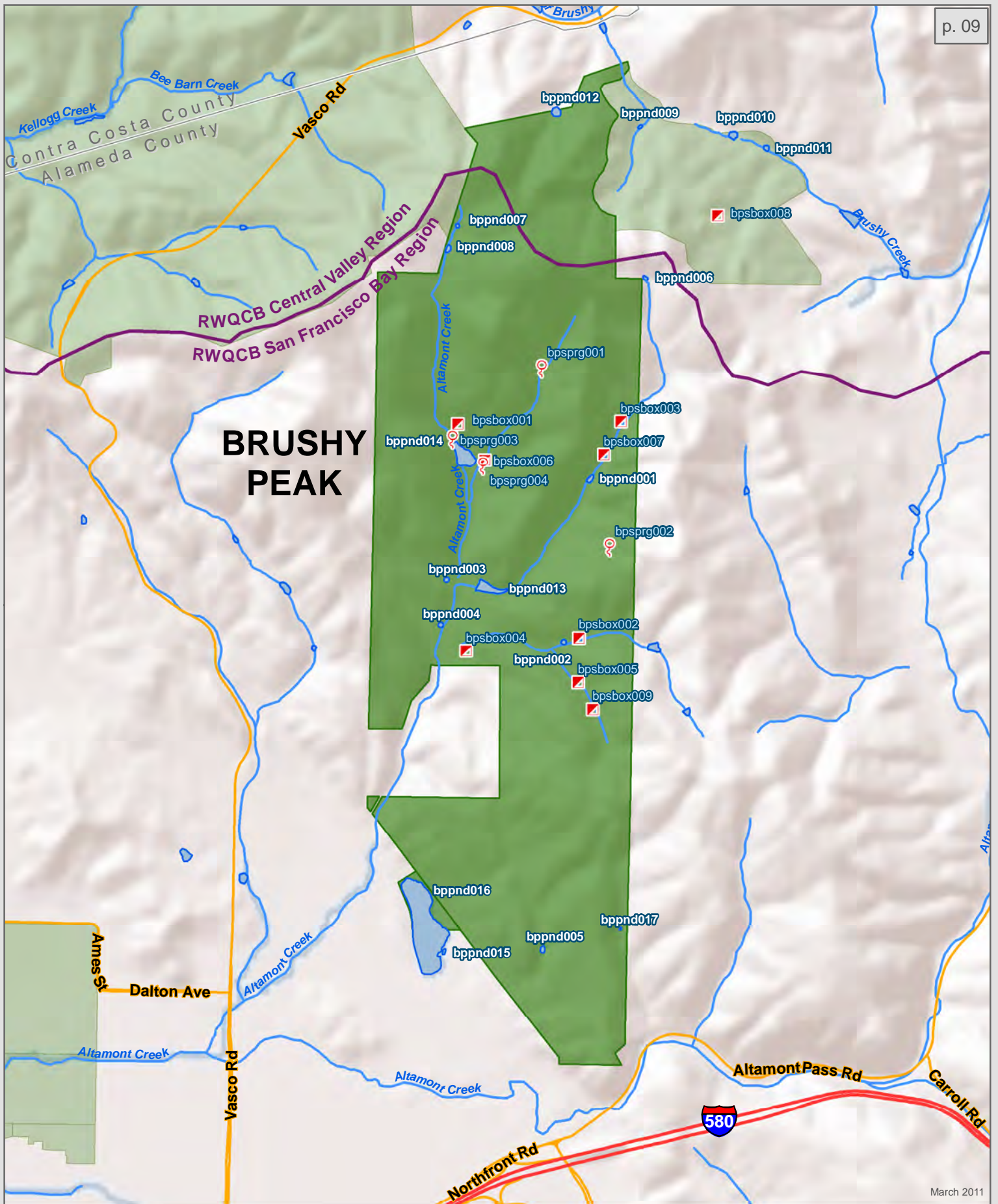


March 2014

## Browns Island

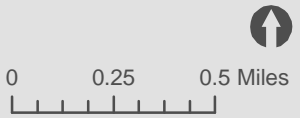
-  Spring box
-  Spring head
-  Spring
-  Spring - Not Confirmed
-  Streams and Creeks
-  Lakes and Ponds



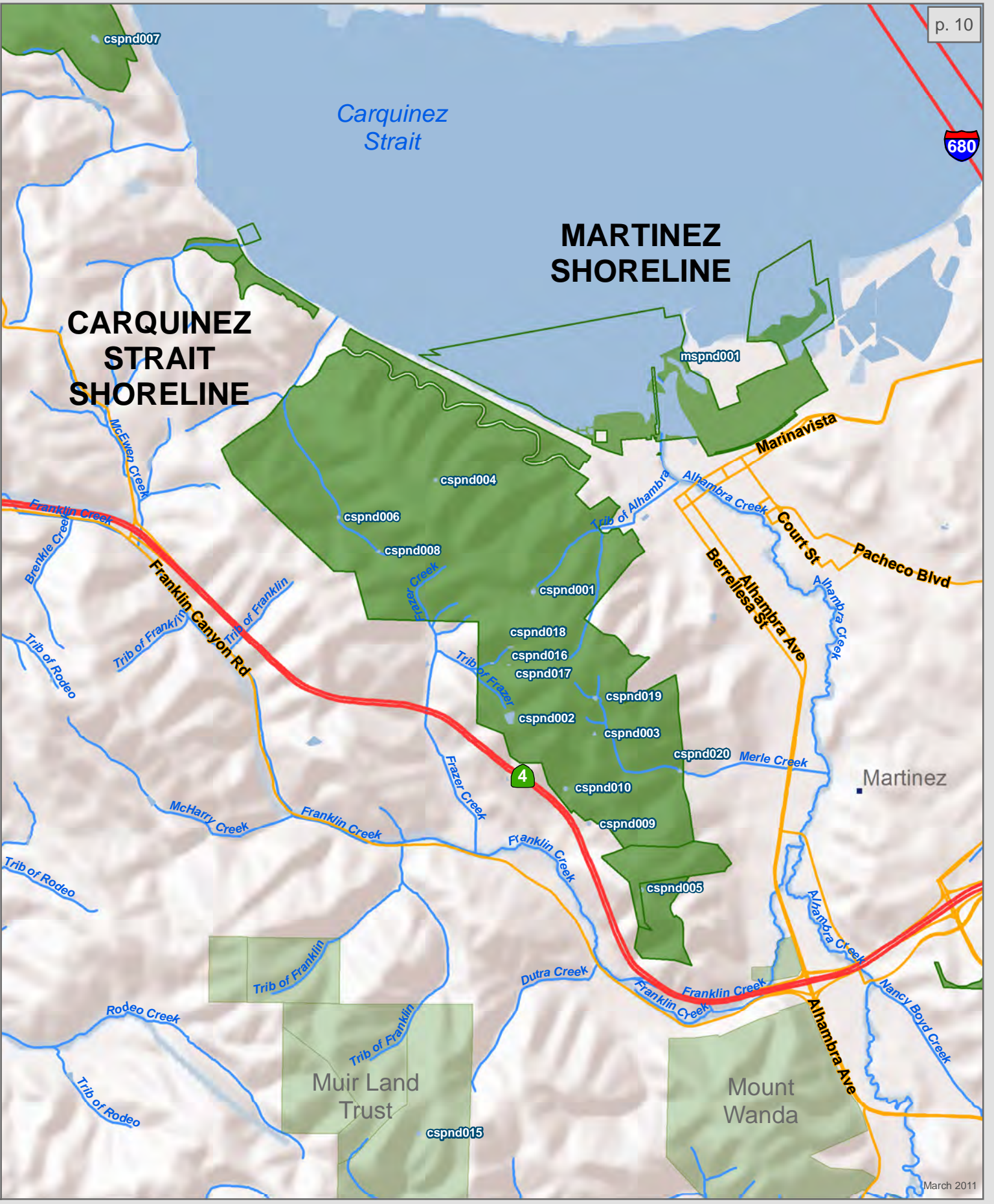


# BRUSHY PEAK

- ▣ Spring box
- Spring head
- Spring
- ⊗ Spring - Not Confirmed
- Streams and Creeks
- ▭ Lakes and Ponds



**Brushy Peak**



# Carquinez Strait Shoreline & Martinez Shoreline

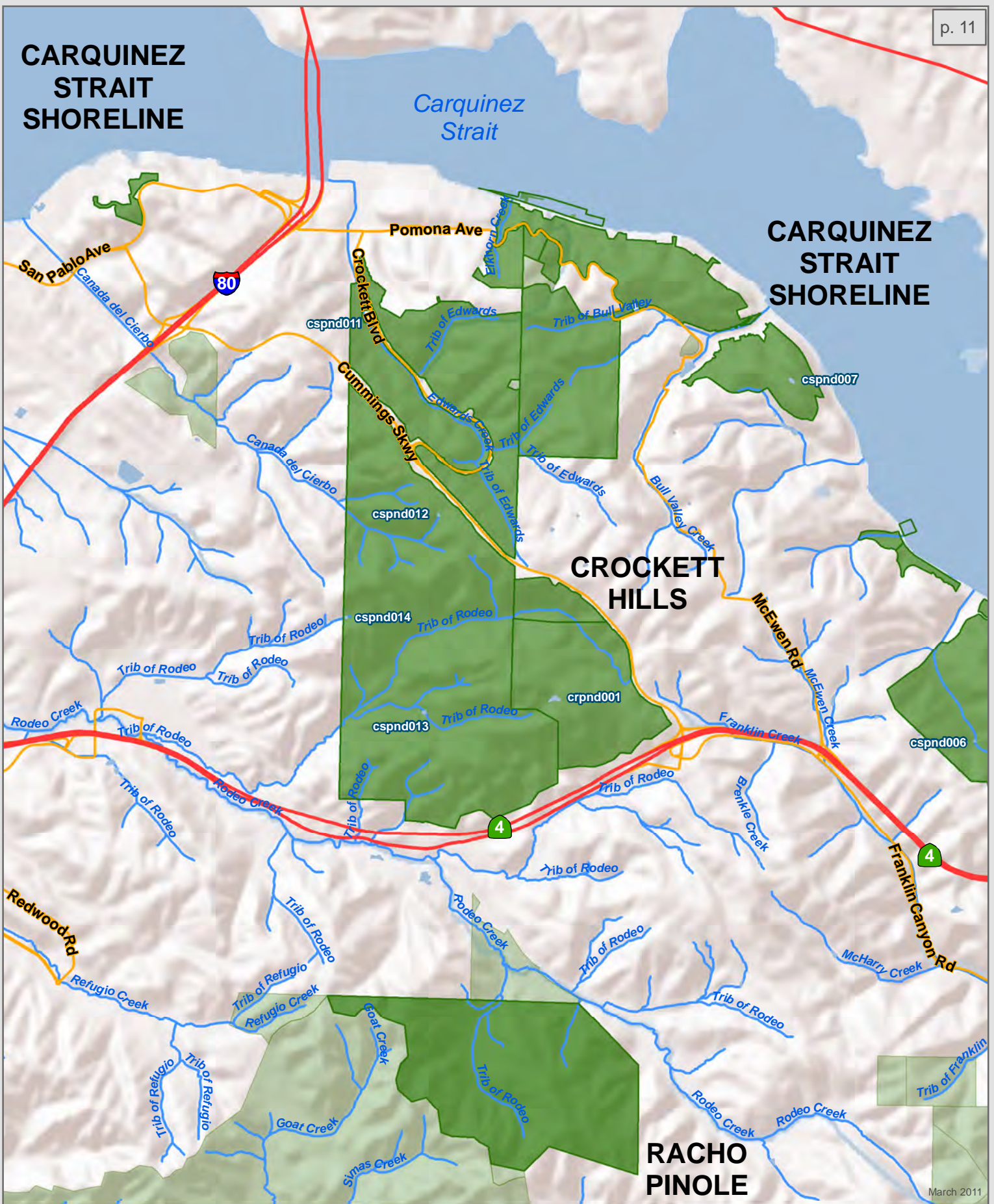
	Spring box		Spring - Not Confirmed
	Spring head		Streams and Creeks
	Spring		Lakes and Ponds

0 0.25 0.5 Miles

# CARQUINEZ STRAIT SHORELINE

Carquinez Strait

# CARQUINEZ STRAIT SHORELINE



# CROCKETT HILLS

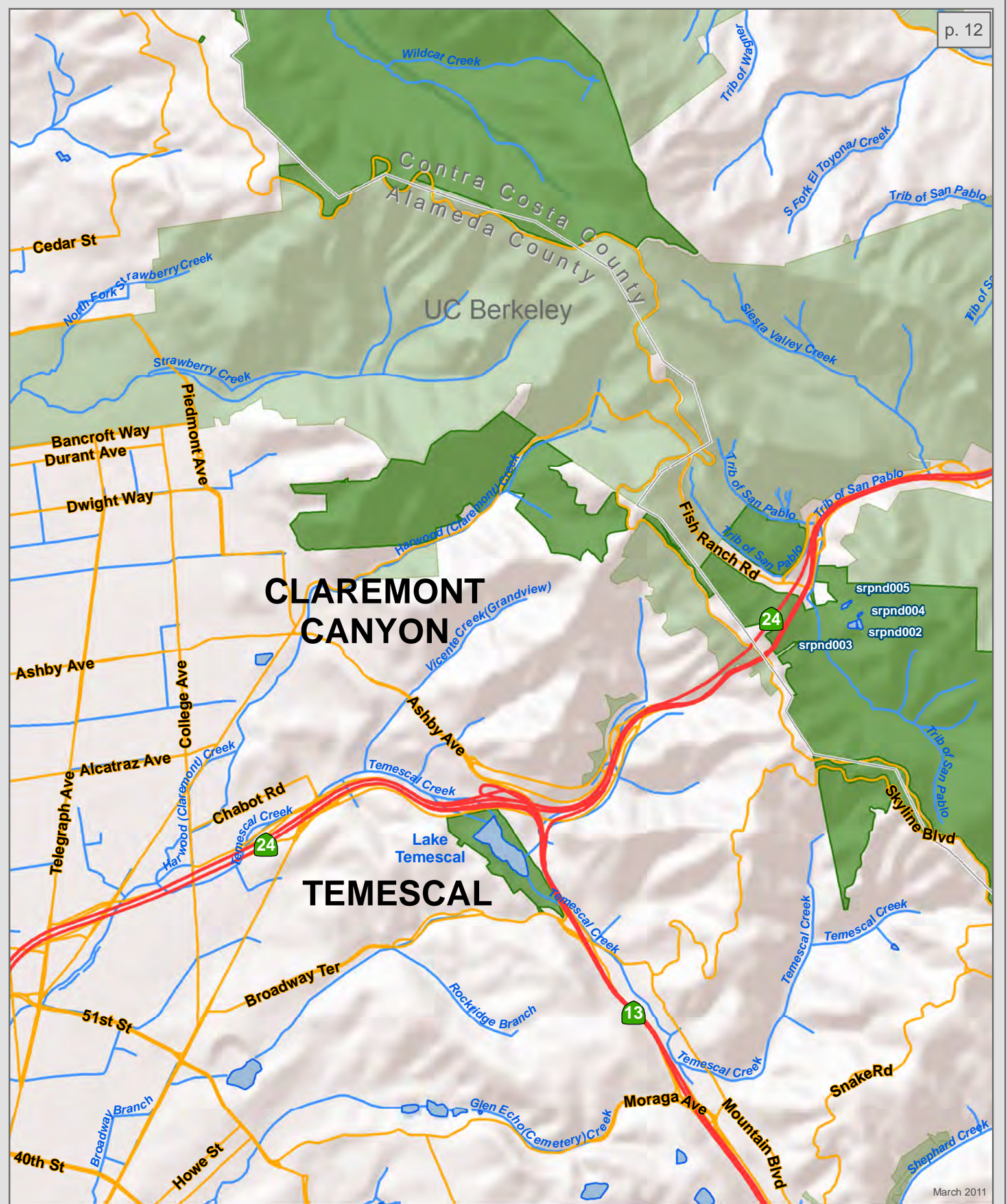
# RACHO PINOLE

## Carquinez Strait Shoreline, Crockett Hills, & Racho Pinole

	Spring box		Spring - Not Confirmed
	Spring head		Streams and Creeks
	Spring		Lakes and Ponds

0 0.25 0.5 Miles

March 2011



March 2011

# Claremont Canyon & Temescal







- ▣ Spring box
- Spring head
- Spring
- Streams and Creeks
- ▭ Lakes and Ponds
- ⊘ Spring - Not Confirmed






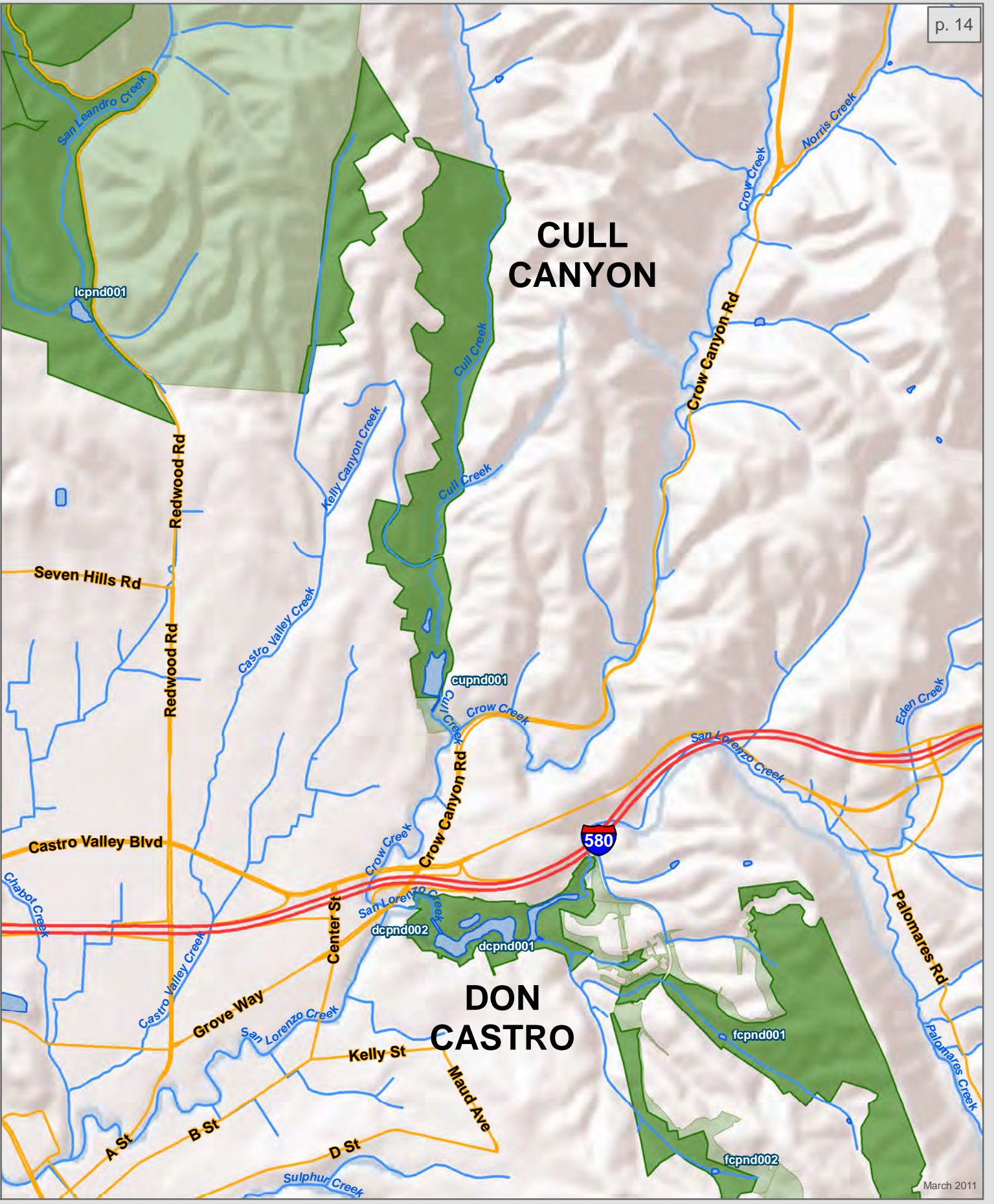


# Crown Beach

-  Spring box
-  Spring head
-  Spring
-  Spring - Not Confirmed
-  Streams and Creeks
-  Lakes and Ponds

0 0.25 0.5 Miles



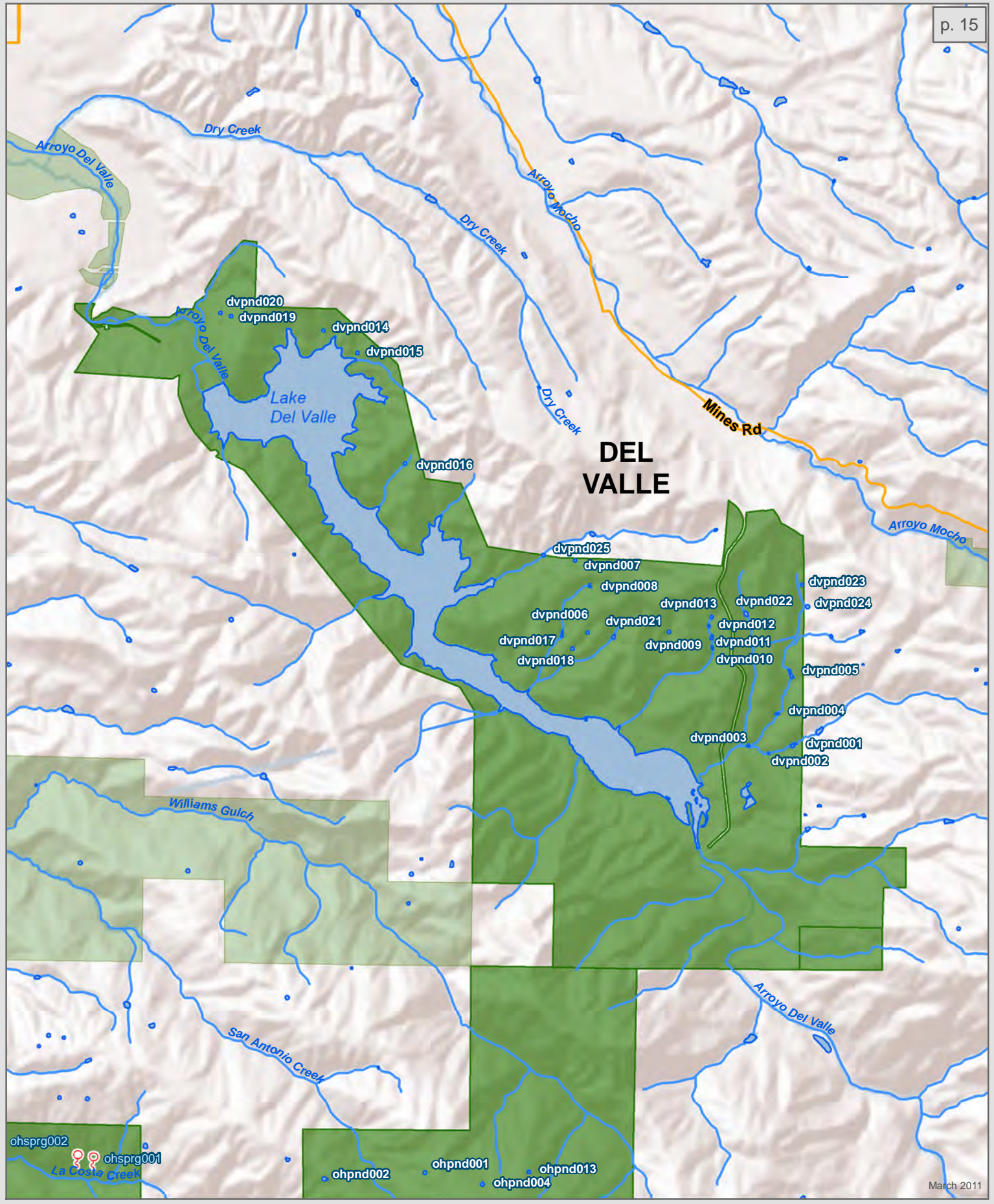



March 2011

# Cull Canyon & Don Castro

- ▣ Spring box
- Spring head
- Spring
- Streams and Creeks
- Lakes and Ponds
- ⊘ Spring - Not Confirmed

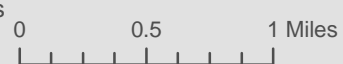
0 0.25 0.5 Miles



March 2011

# Del Valle

- ▣ Spring box
- Spring head
- 📍 Spring
- ⊘ Spring - Not Confirmed
- Streams and Creeks
- ▭ Lakes and Ponds

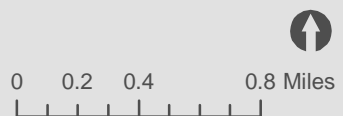


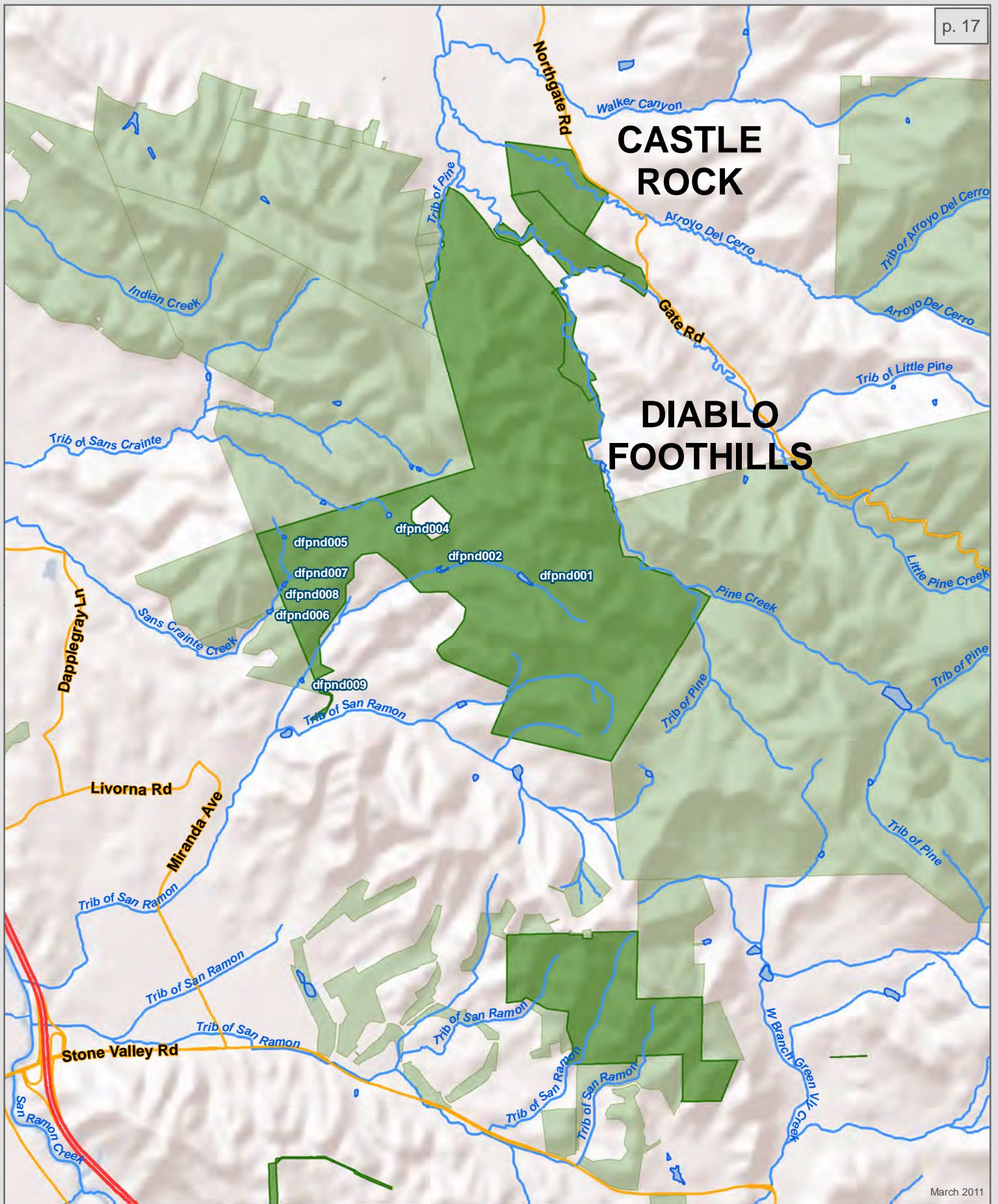


March 2011

# Delta Access




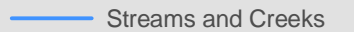

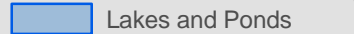
- ▣ Spring box
- Spring head
- Spring
- Streams and Creeks
- ▭ Lakes and Ponds
- ⊘ Spring - Not Confirmed

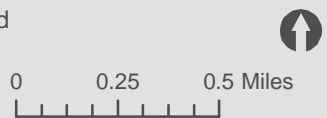




March 2011

# Diablo Foothills & Castle Rock

-  Spring box
-  Spring - Not Confirmed
-  Spring head
-  Streams and Creeks
-  Spring
-  Lakes and Ponds

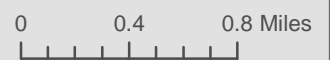


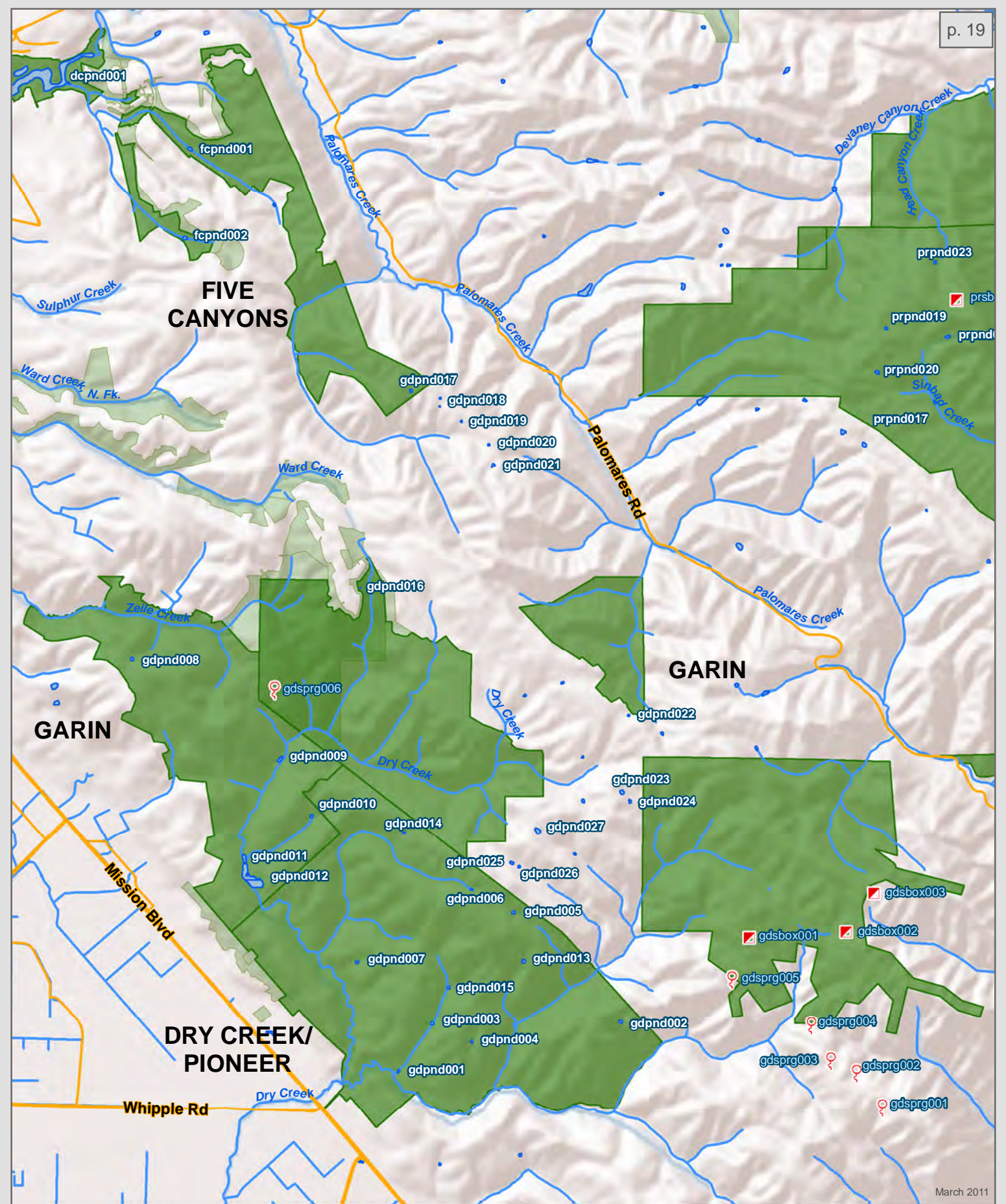


March 2011

# Eastshore State Park & Point Isabel

- ▣ Spring box
- Spring head
- Spring
- ⊗ Spring - Not Confirmed
- Streams and Creeks
- ▭ Lakes and Ponds

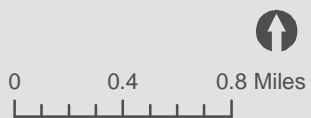




March 2011

# Garin/Dry Creek & Five Canyons

- Spring box
- Spring head
- Spring
- Streams and Creeks
- Lakes and Ponds
- Spring - Not Confirmed











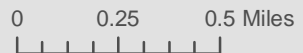
# HAYWARD SHORELINE

San Francisco Bay

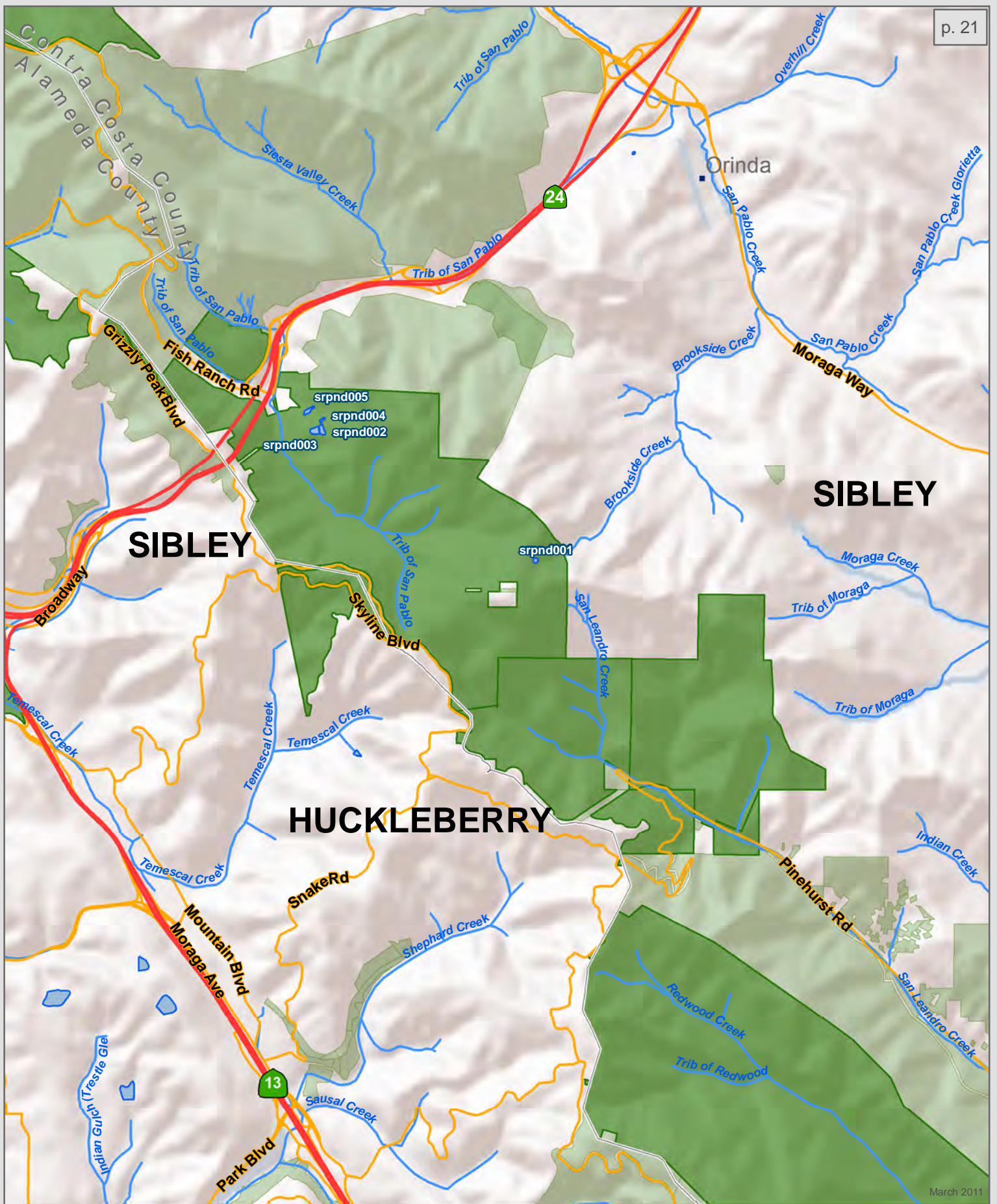
March 2011

## Hayward Shoreline

-  Spring box
-  Spring - Not Confirmed
-  Spring head
-  Streams and Creeks
-  Spring
-  Lakes and Ponds



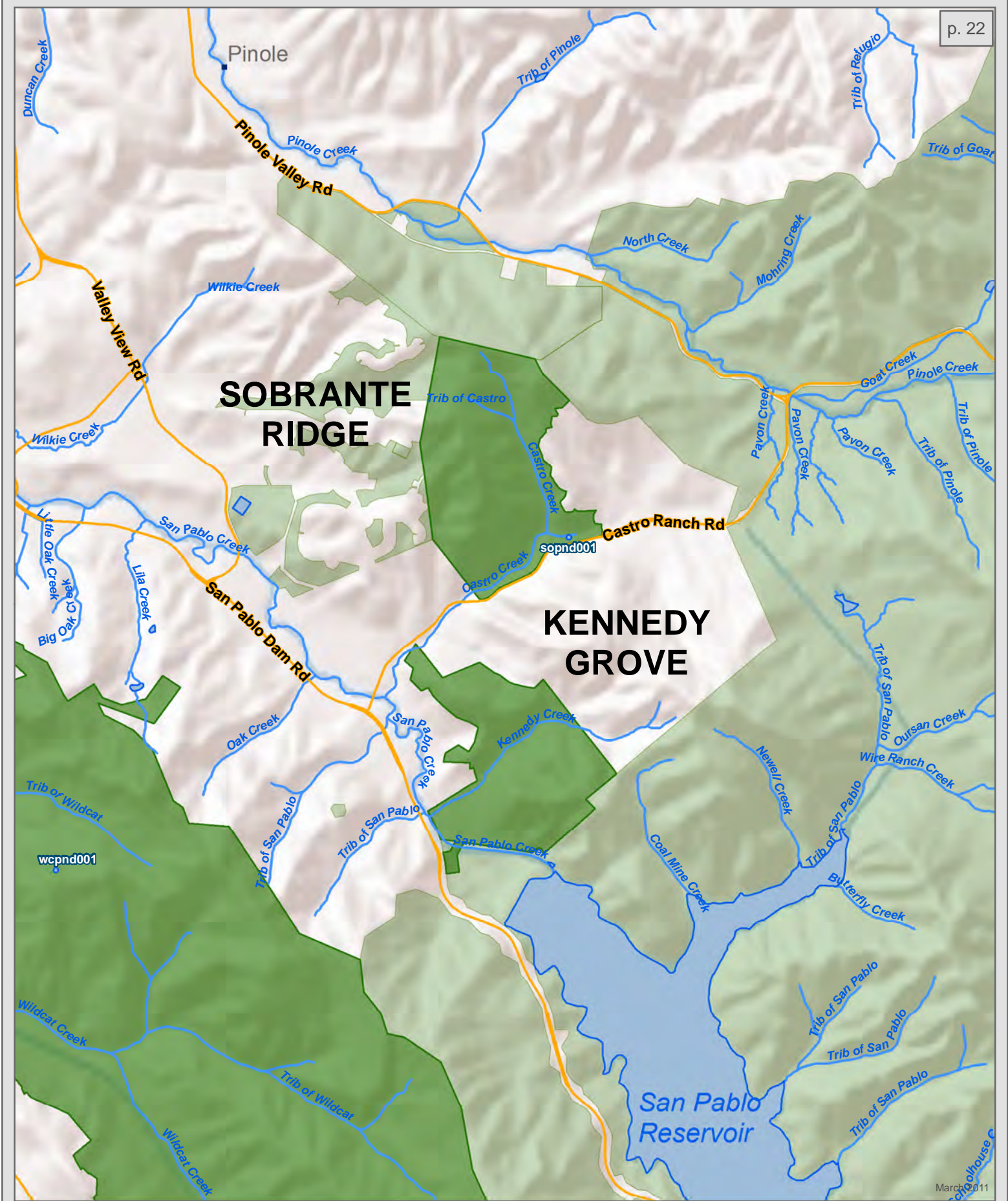




# Huckleberry & Sibley

- ▣ Spring box
- Spring head
- Spring
- ⊞ Spring - Not Confirmed
- Streams and Creeks
- ▭ Lakes and Ponds





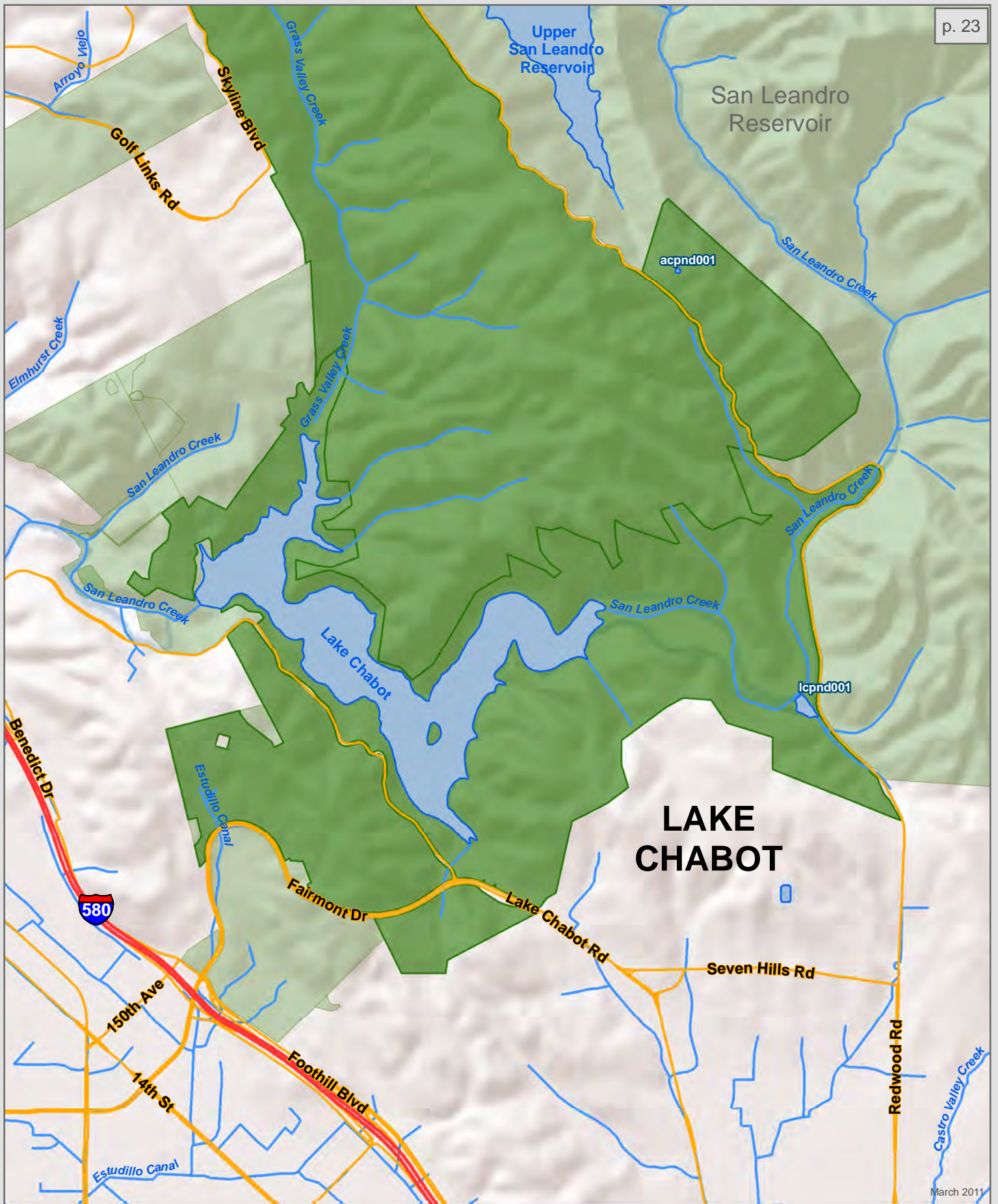
# SOBRANTE RIDGE

# KENNEDY GROVE

## Kennedy Grove & Sobrante Ridge







- ▣ Spring box
- Spring head
- ⊙ Spring
- Streams and Creeks
- ▭ Lakes and Ponds
- ⊗ Spring - Not Confirmed

0 0.25 0.5 Miles



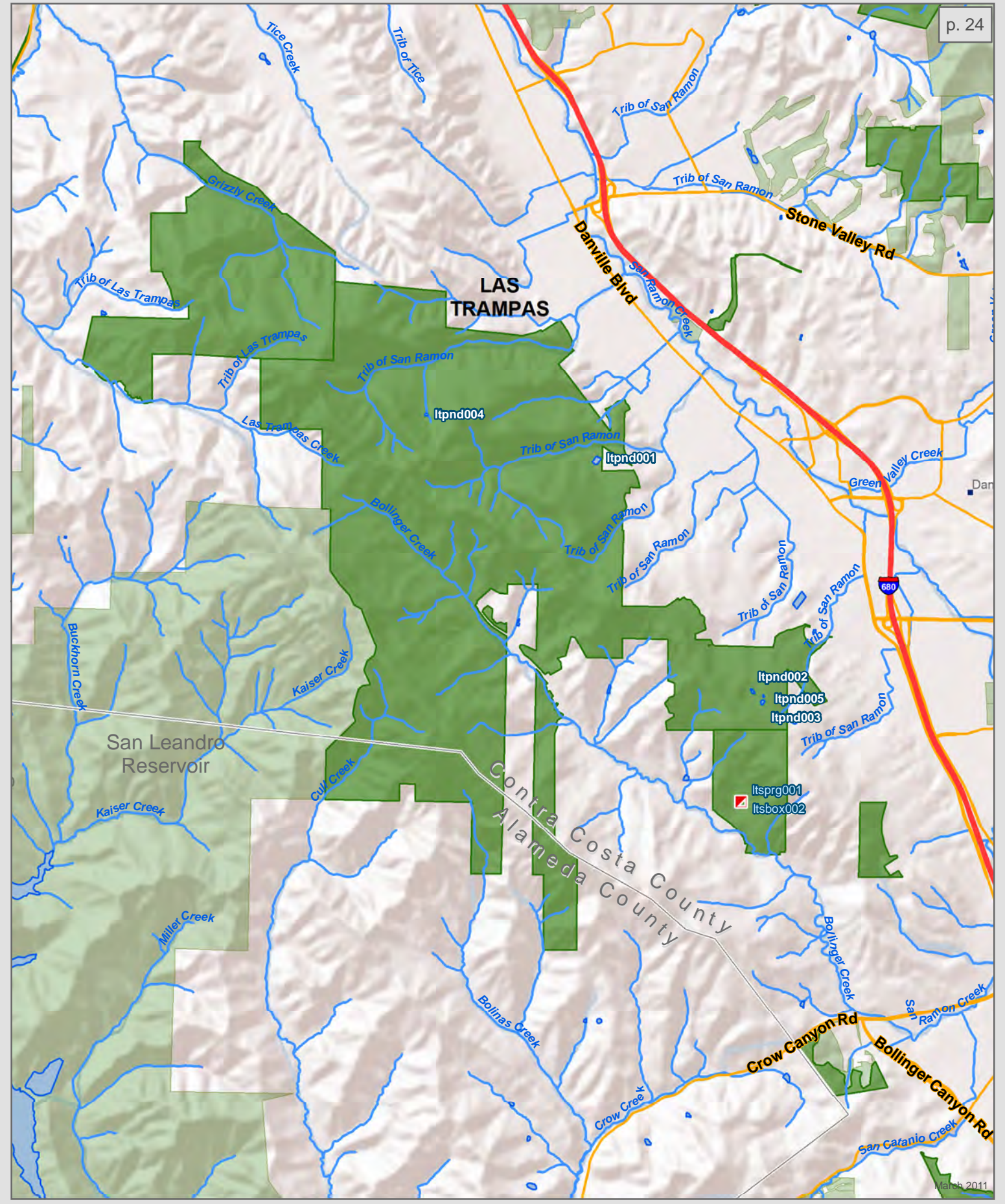
March 2011

# Lake Chabot




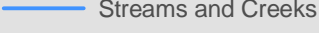


-  Spring box
-  Spring head
-  Spring
-  Spring - Not Confirmed
-  Streams and Creeks
-  Lakes and Ponds

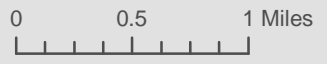
0 0.25 0.5 Miles



# Las Trampas

-  Spring box
-  Spring - Not Confirmed
-  Spring head
-  Streams and Creeks
-  Spring
-  Lakes and Ponds





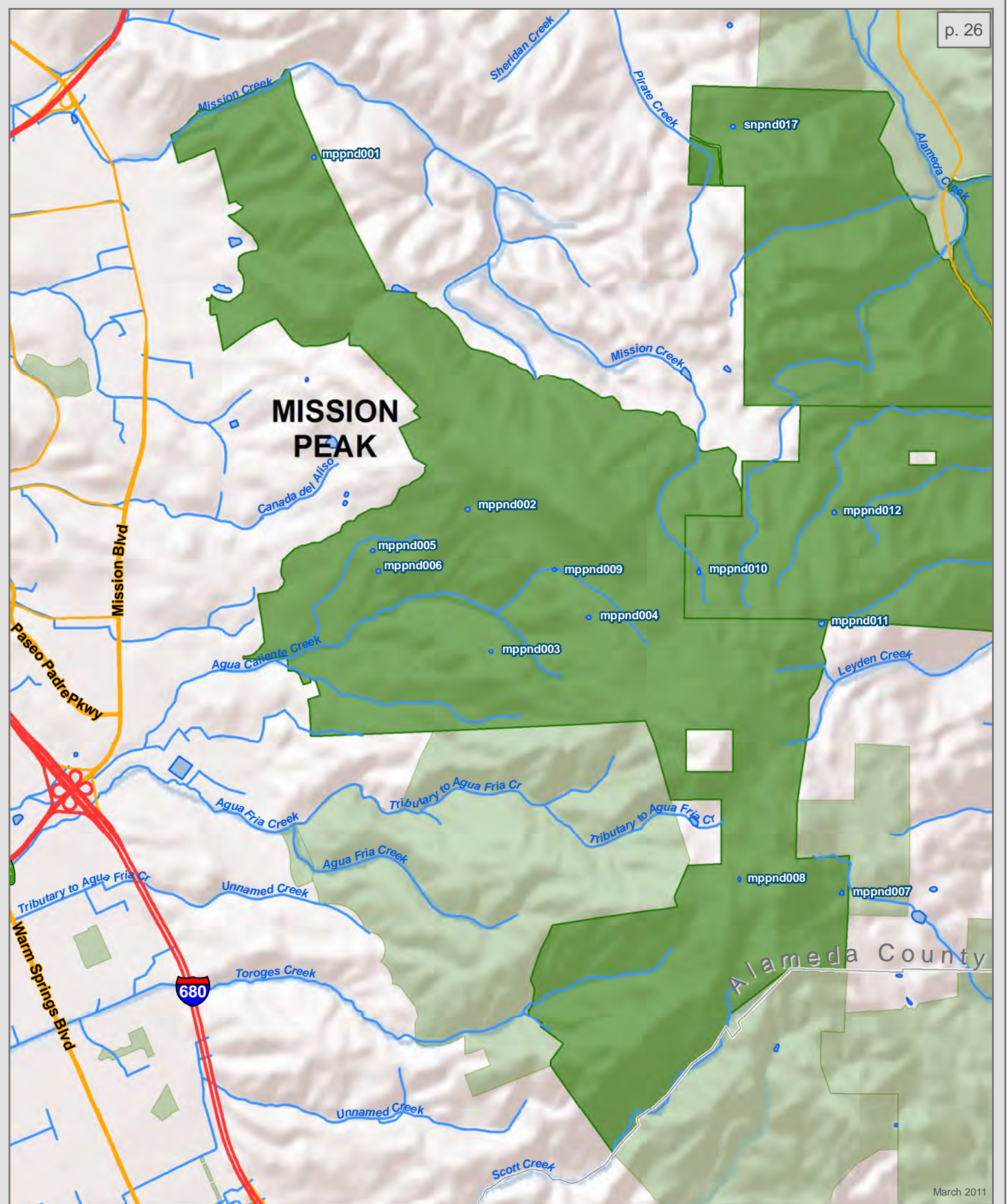
March 2011

# Miller/Knox & Brooks Island

- Spring box
- Spring head
- Spring
- ⊗ Spring - Not Confirmed
- Streams and Creeks
- Lakes and Ponds





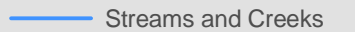
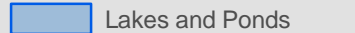
0 0.25 0.5 Miles



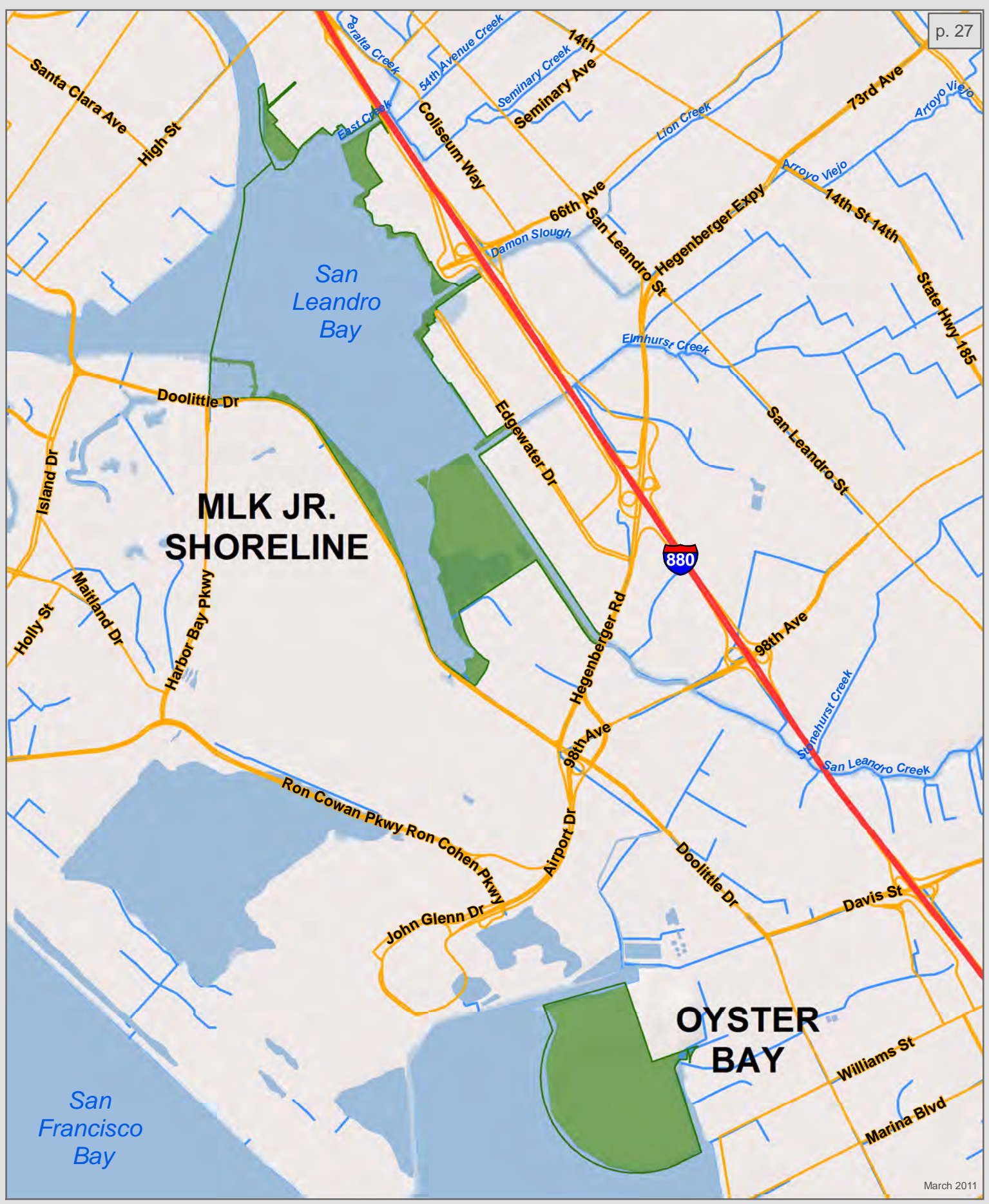


March 2011

# Mission Peak







-  Spring box
-  Spring head
-  Spring
-  Spring - Not Confirmed
-  Streams and Creeks
-  Lakes and Ponds

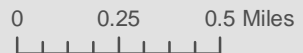


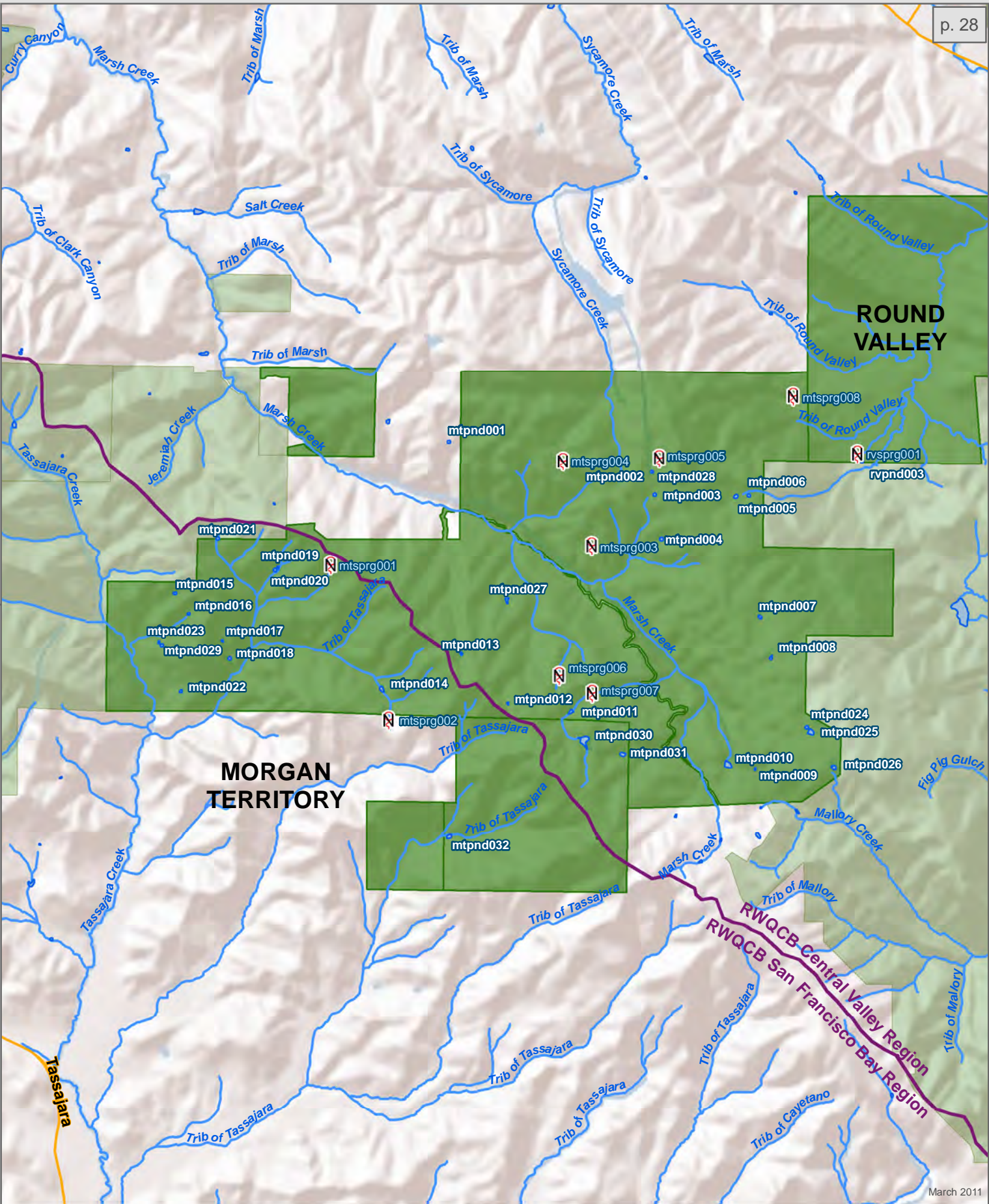


March 2011

# MLK Jr. Shoreline & Oyster Bay

-  Spring box
-  Spring head
-  Spring
-  Spring - Not Confirmed
-  Streams and Creeks
-  Lakes and Ponds





# MORGAN TERRITORY

# ROUND VALLEY

RWQCB-Central Valley Region  
 RWQCB San Francisco Bay Region

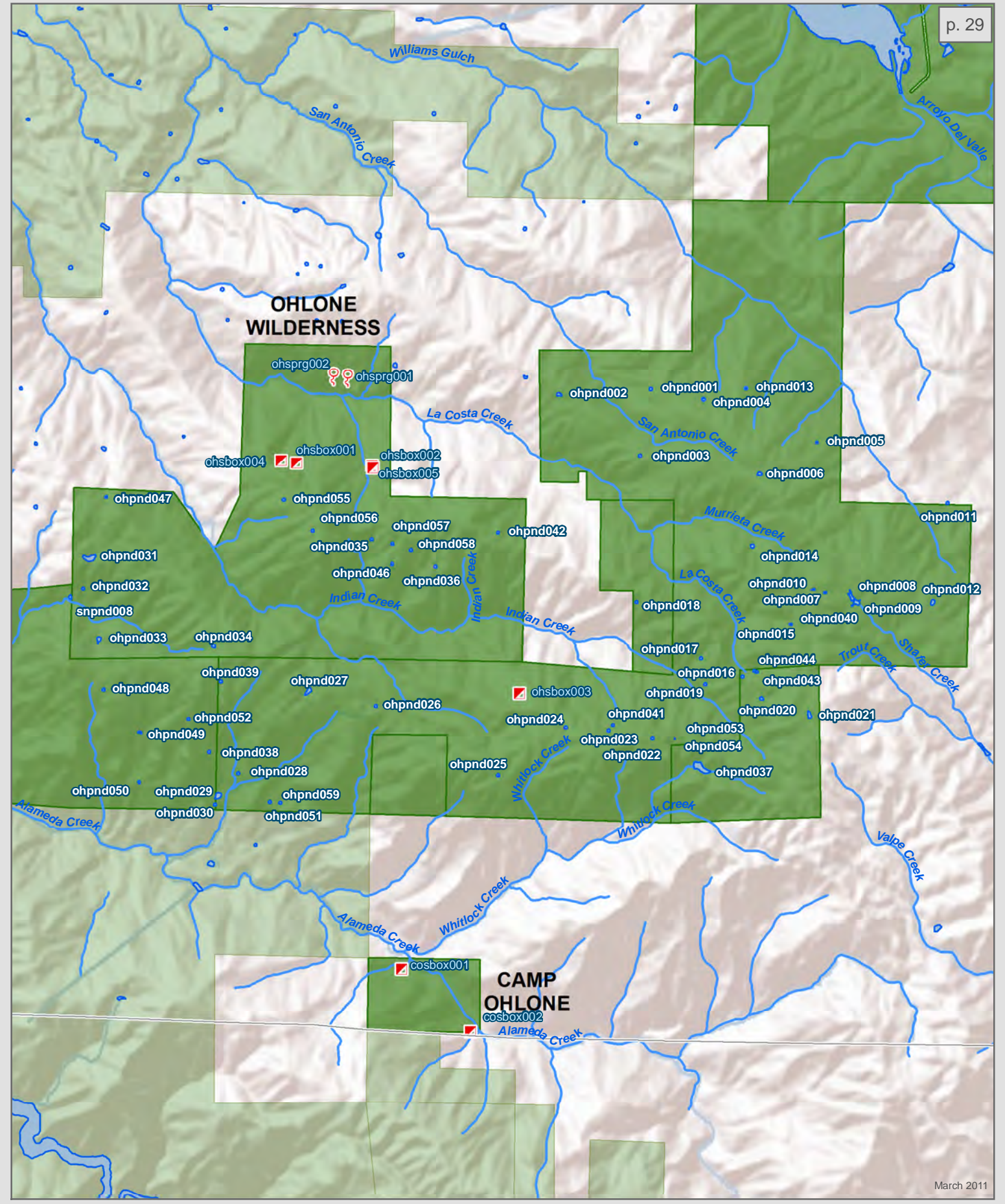
March 2011

# Morgan Territory

- Spring box
- Spring head
- Spring
- ⊗ Spring - Not Confirmed
- Streams and Creeks
- ▭ Lakes and Ponds









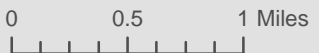


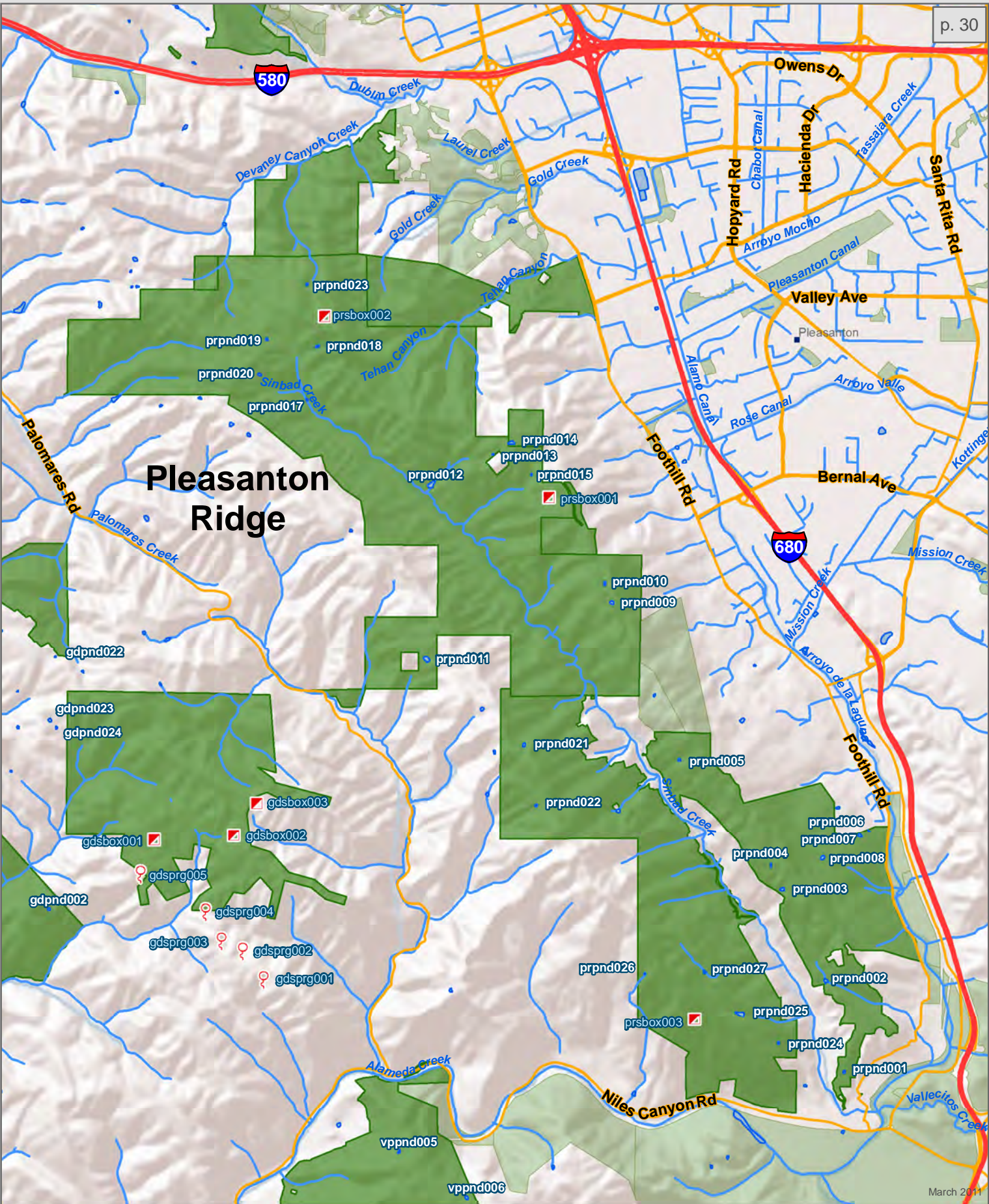


March 2011

# Ohlone Wilderness & Camp Ohlone

-  Spring box
-  Spring head
-  Spring
-  Spring - Not Confirmed
-  Streams and Creeks
-  Lakes and Ponds





# Pleasanton Ridge







# Pleasanton Ridge



	Spring box		Spring - Not Confirmed
	Spring head		Streams and Creeks
	Spring		Lakes and Ponds

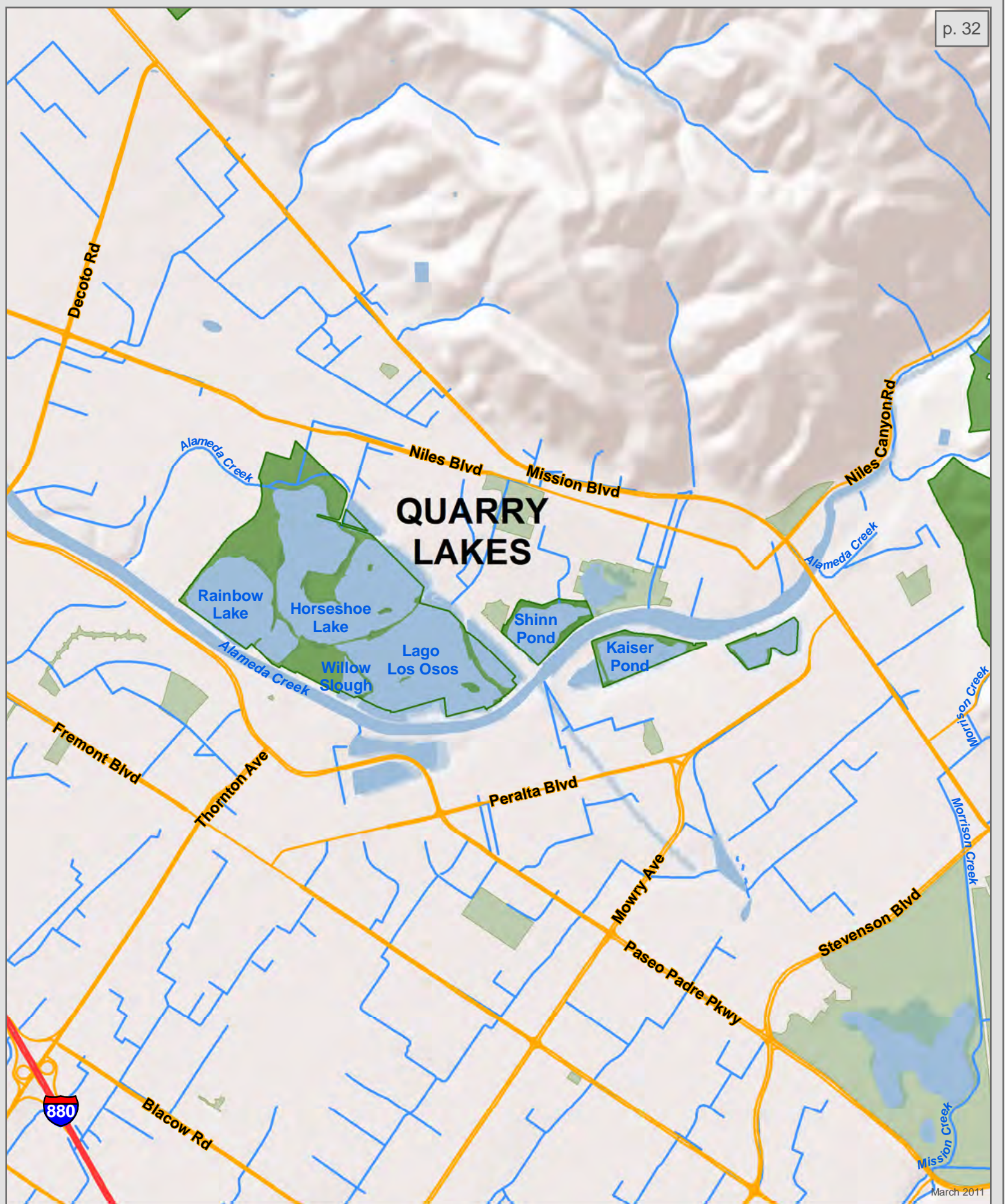
0 0.5 1 Miles









# Point Pinole

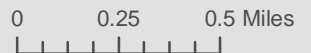
 Spring box	 Spring - Not Confirmed
 Spring head	 Streams and Creeks
 Spring	 Lakes and Ponds


  
 0      0.25      0.5 Miles
 

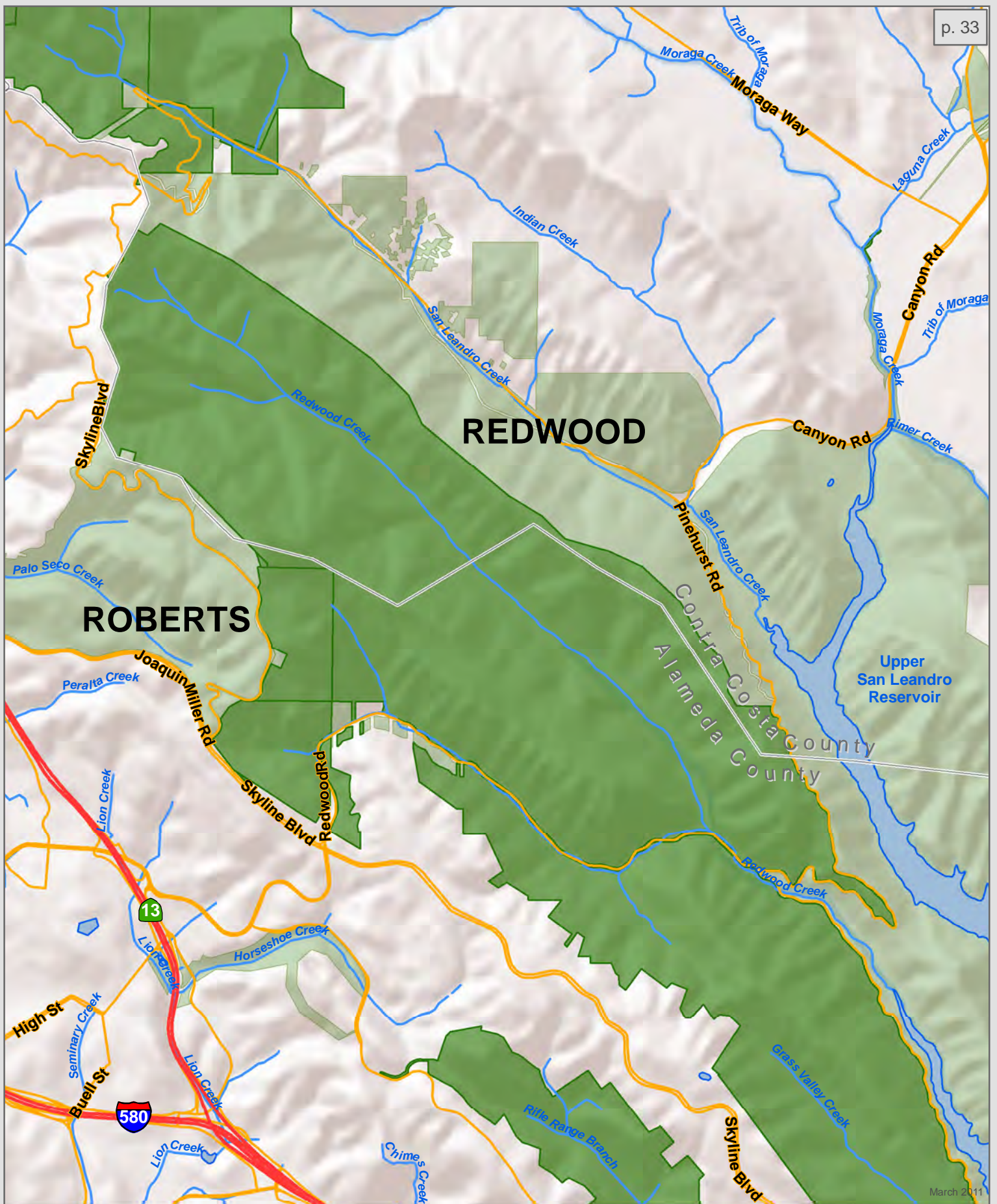


# Quarry Lakes

-  Spring box
-  Spring head
-  Spring
-  Spring - Not Confirmed
-  Streams and Creeks
-  Lakes and Ponds



March 2011

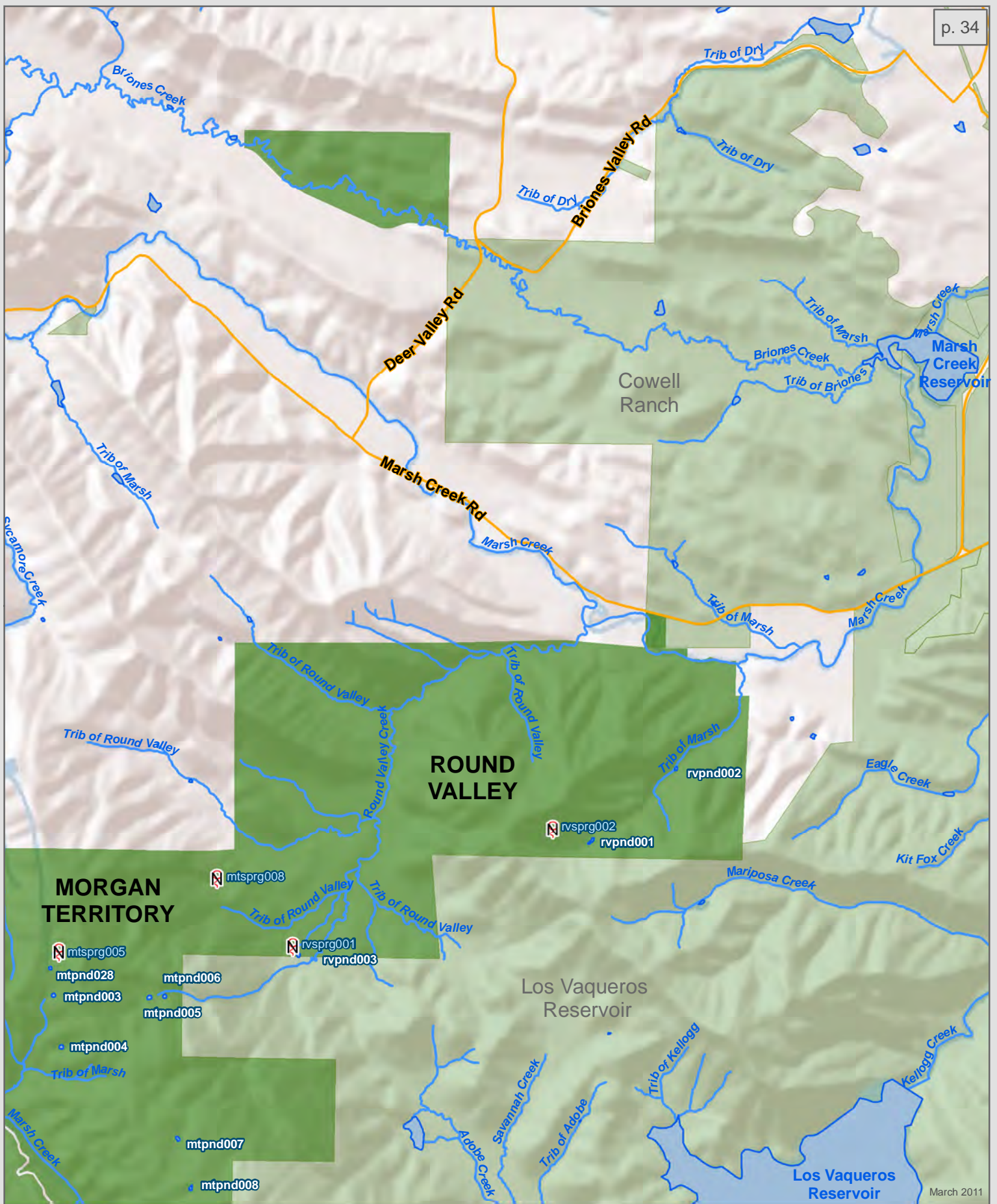


March 2011

# Redwood & Roberts





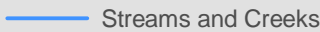
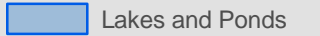
- Spring box
- Spring head
- Spring
- ⊗ Spring - Not Confirmed
- Streams and Creeks
- ▭ Lakes and Ponds

↑  
 0 0.25 0.5 Miles



March 2011

# Round Valley






-  Spring box
-  Spring head
-  Spring
-  Spring - Not Confirmed
-  Streams and Creeks
-  Lakes and Ponds

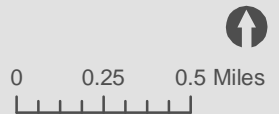




March 2011

# San Pablo Bay Shoreline & Lone Tree Point







-  Spring box
-  Spring head
-  Spring
-  Spring - Not Confirmed
-  Streams and Creeks
-  Lakes and Ponds






March 2011

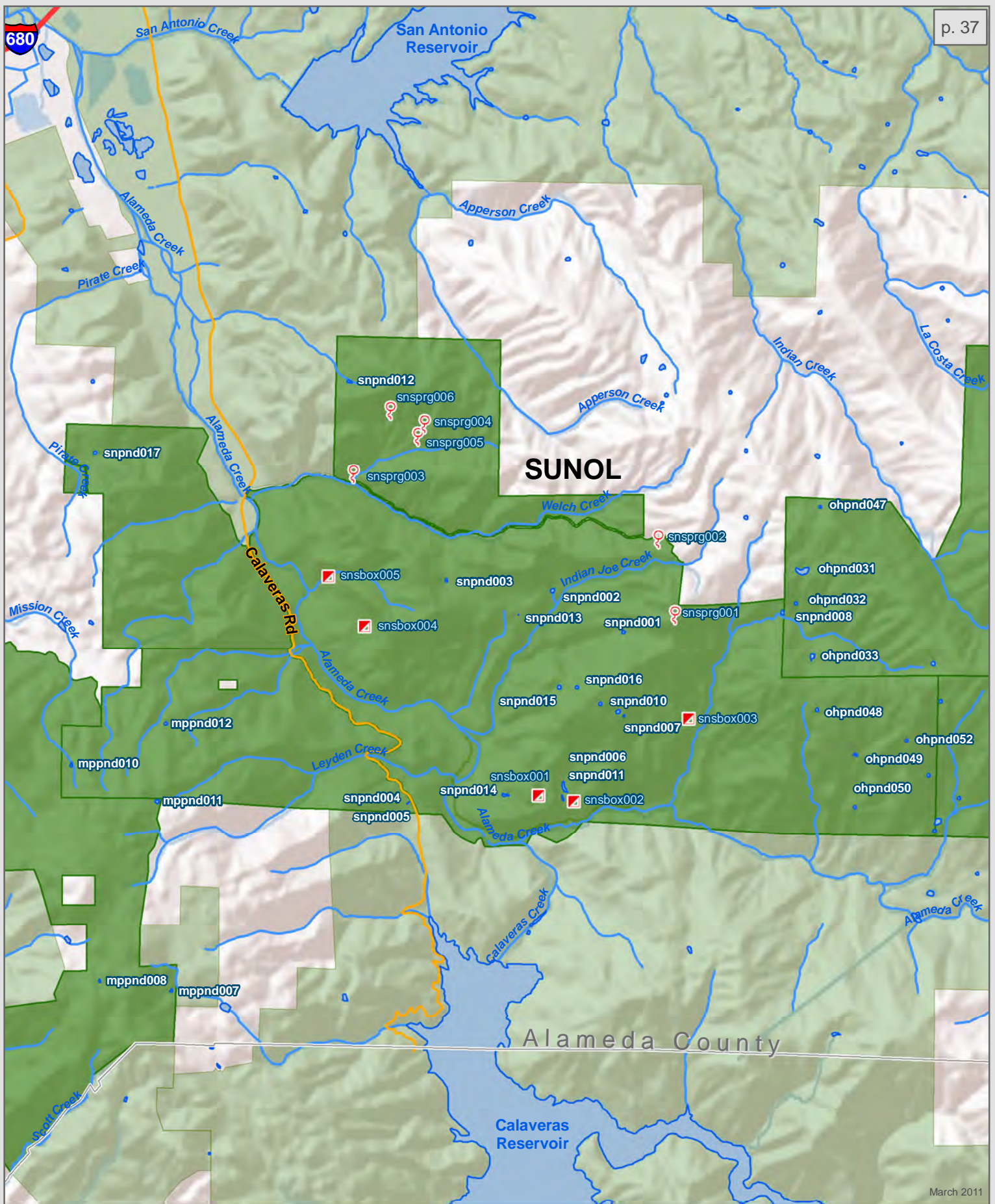
# Shadow Cliffs

-  Spring box
-  Spring head
-  Spring
-  Streams and Creeks
-  Lakes and Ponds
-  Spring - Not Confirmed



0 0.25 0.5 Miles





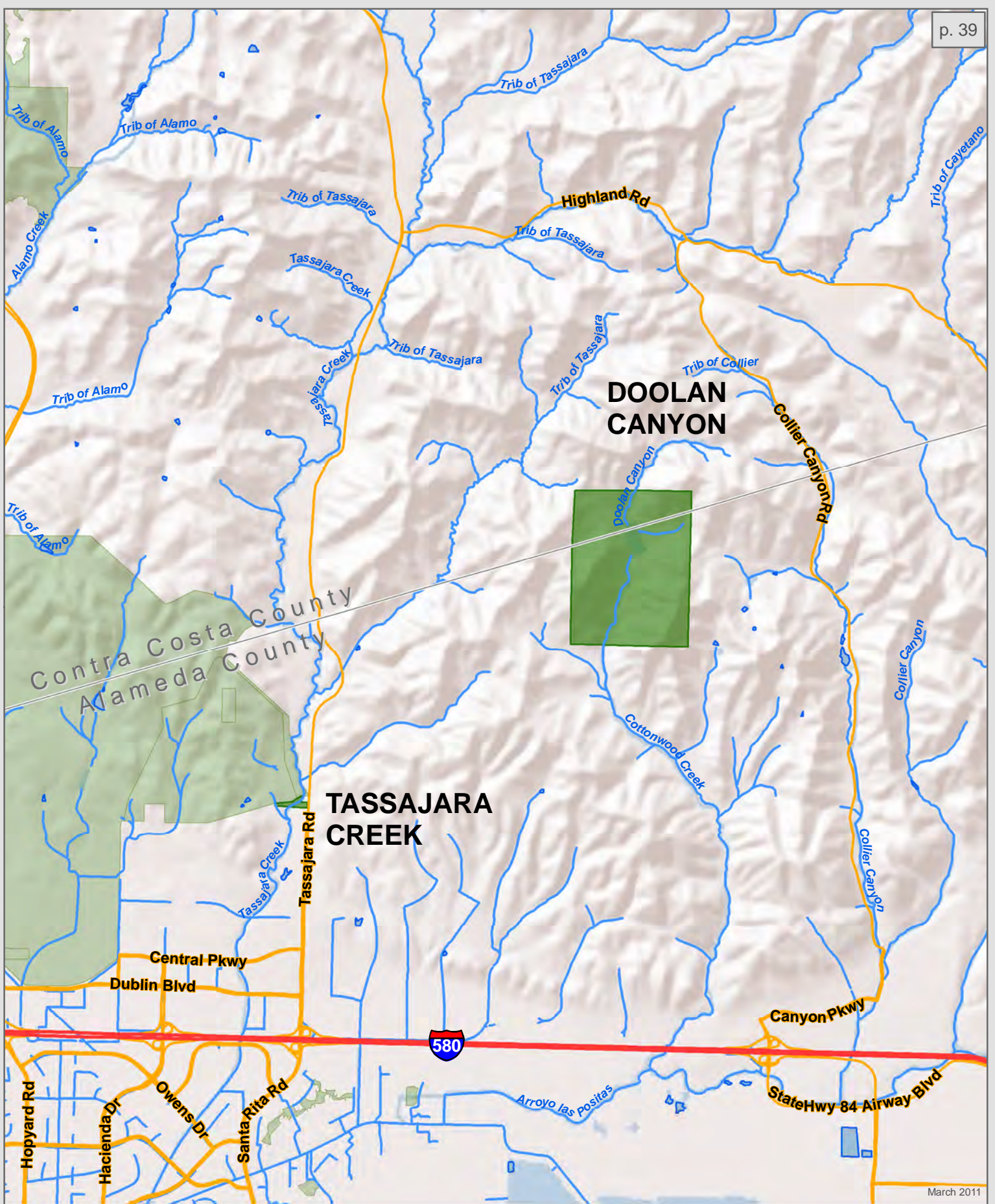



Sunol 

-  Spring box
-  Spring - Not Confirmed
-  Spring head
-  Streams and Creeks
-  Spring
-  Lakes and Ponds




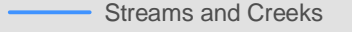

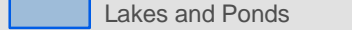




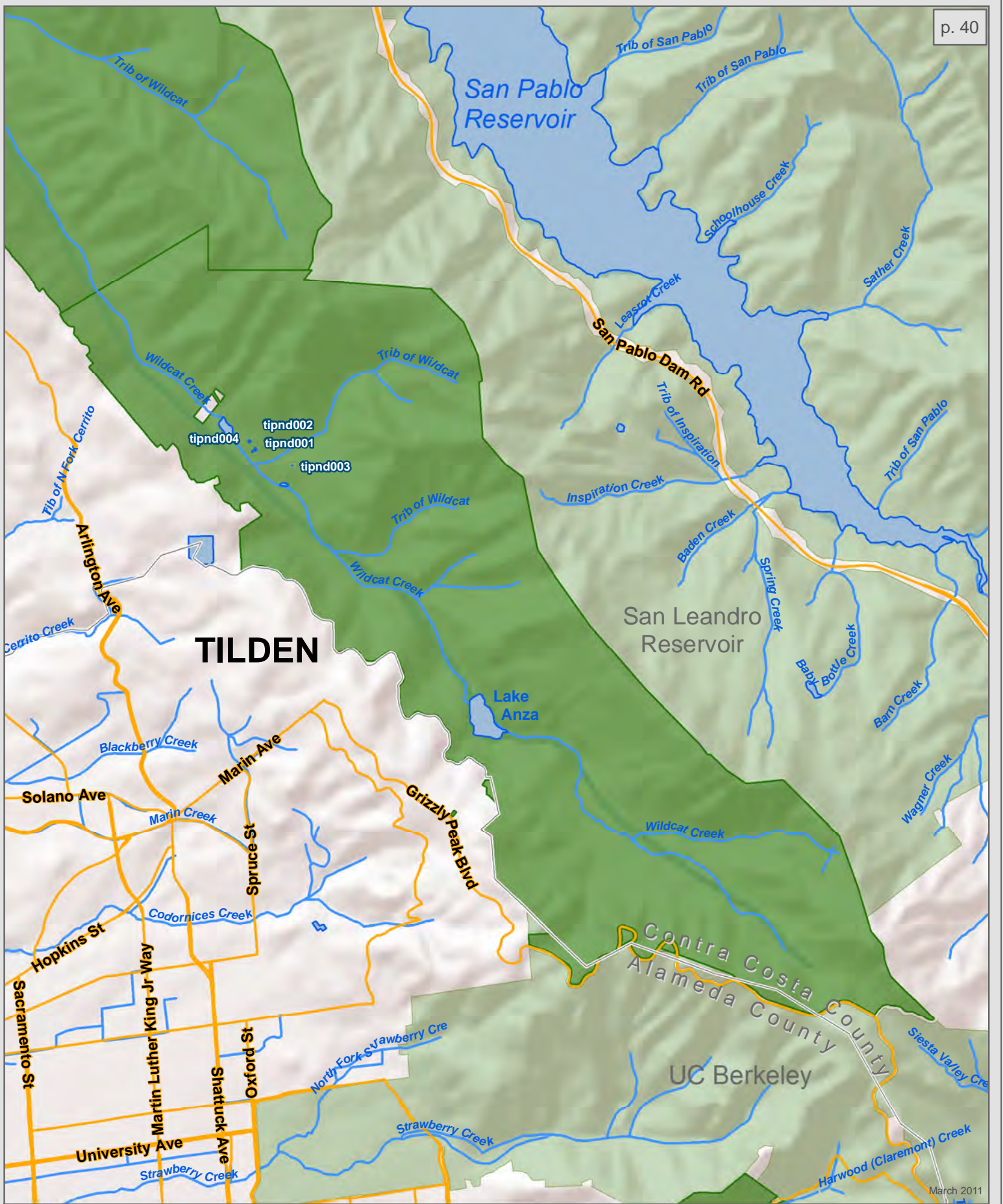


March 2011

# Tassajara Creek & Doolan Canyon

-  Spring box
-  Spring - Not Confirmed
-  Spring head
-  Streams and Creeks
-  Spring
-  Lakes and Ponds

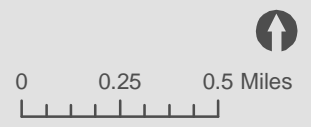




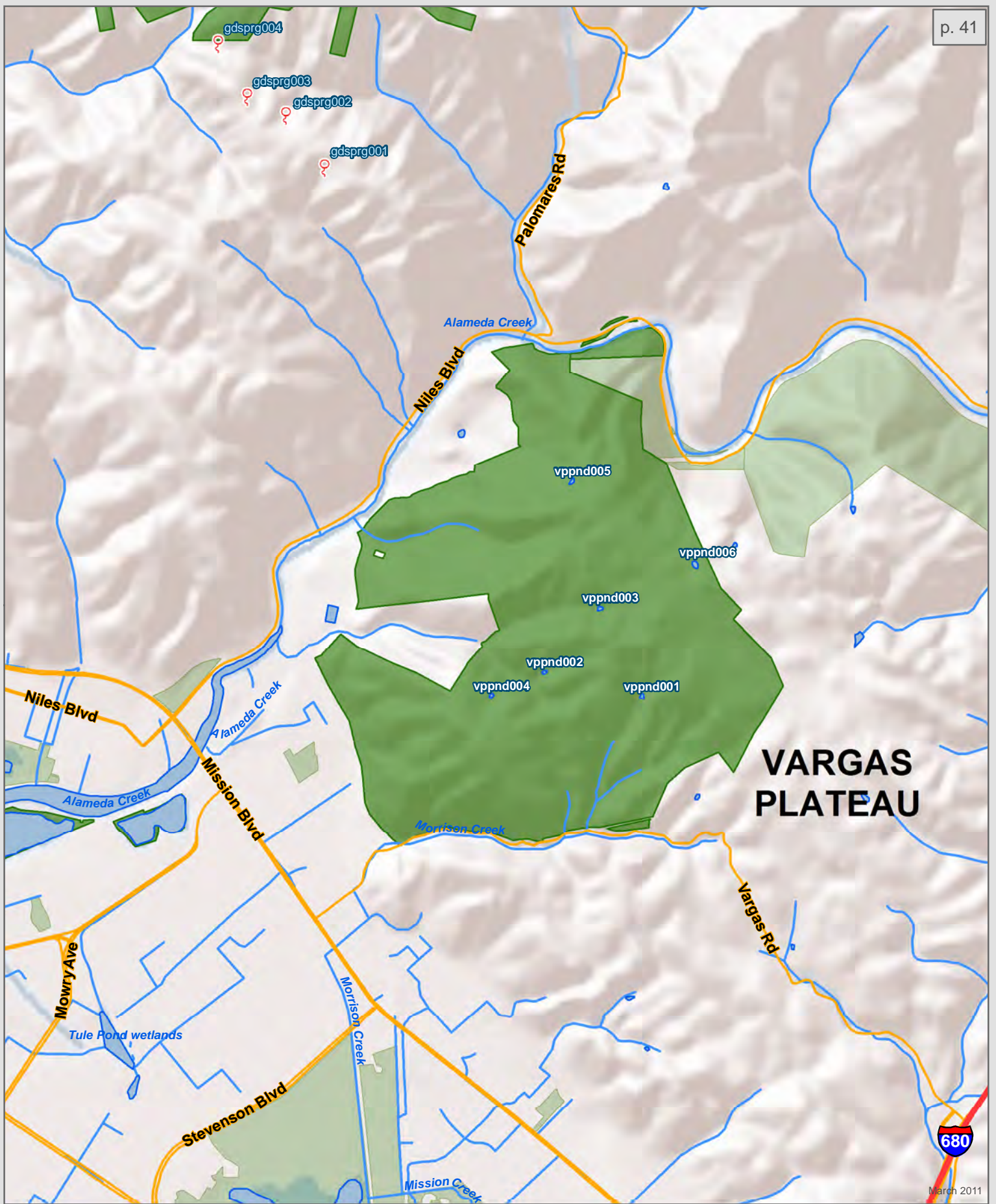
# TILDEN

## Tilden

- ▣ Spring box
- Spring head
- ⊙ Spring
- Streams and Creeks
- Lakes and Ponds
- ⊘ Spring - Not Confirmed




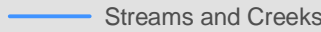




March 2011

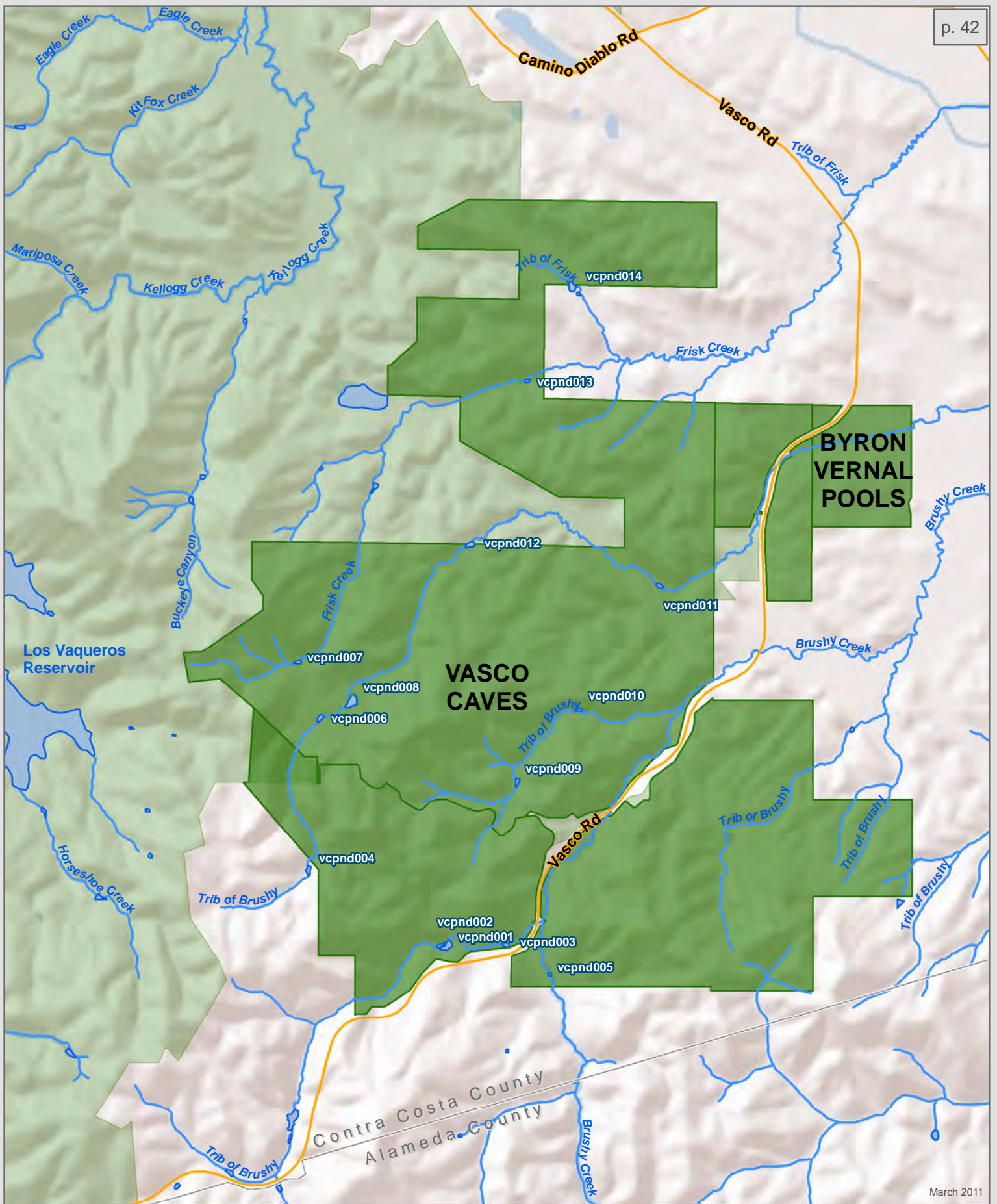


March 2011

# Vargas Plateau

-  Spring box
-  Spring - Not Confirmed
-  Spring head
-  Streams and Creeks
-  Spring
-  Lakes and Ponds

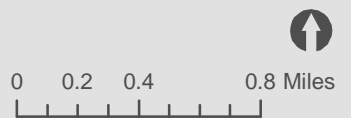




March 2011

# Vasco Caves & Byron Vernal Pools



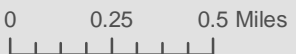




- Spring box
- Spring head
- Spring
- ⊗ Spring - Not Confirmed
- Streams and Creeks
- Lakes and Ponds





March 2011

**Waterbird** 







 Spring box	 Spring - Not Confirmed	
 Spring head	 Streams and Creeks	
 Spring	 Lakes and Ponds	





# WILDCAT CANYON

## Wildcat Canyon

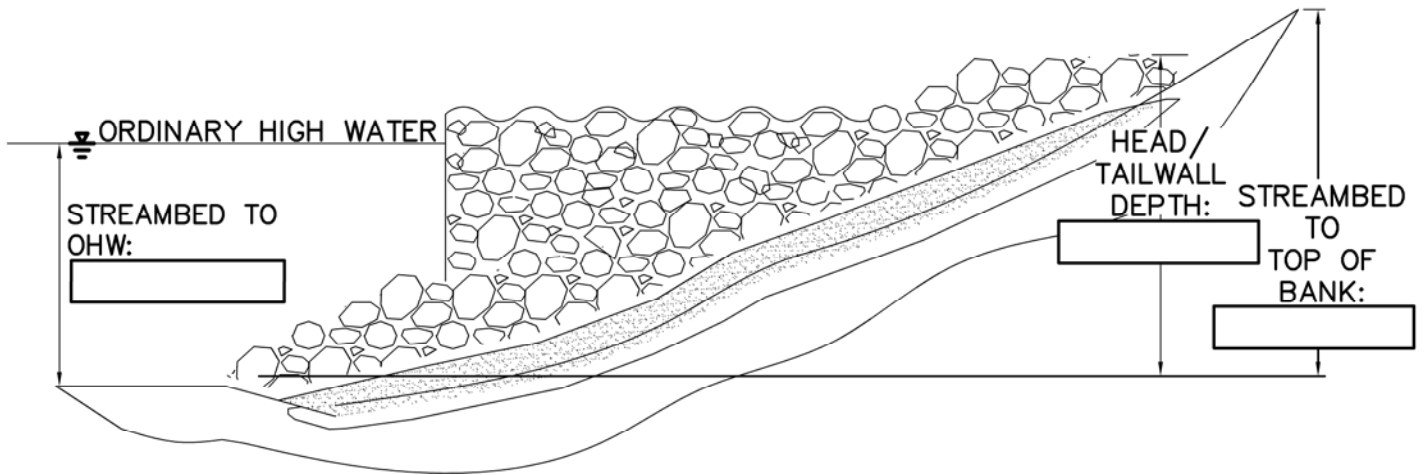
-  Spring box
-  Spring head
-  Spring
-  Spring - Not Confirmed
-  Streams and Creeks
-  Lakes and Ponds

0 0.25 0.5 Miles





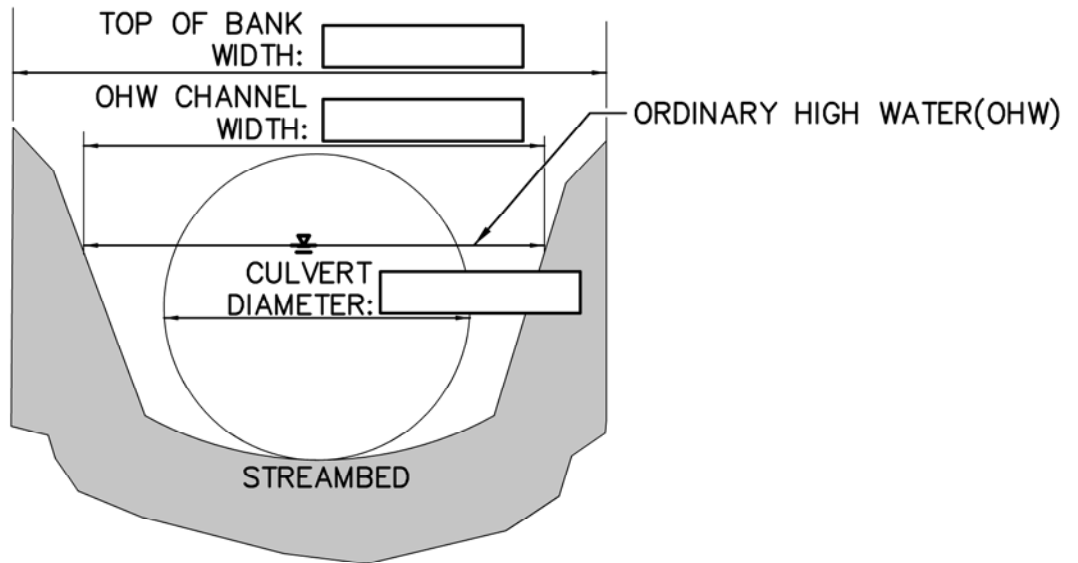
# CULVERT REPAIR, REPLACEMENT, UPGRADE, AND MAINTENANCE (INCLUDING HEAD AND TAILWALLS)



CULVERT – SIDE VIEW

STREAM GRADIENT:

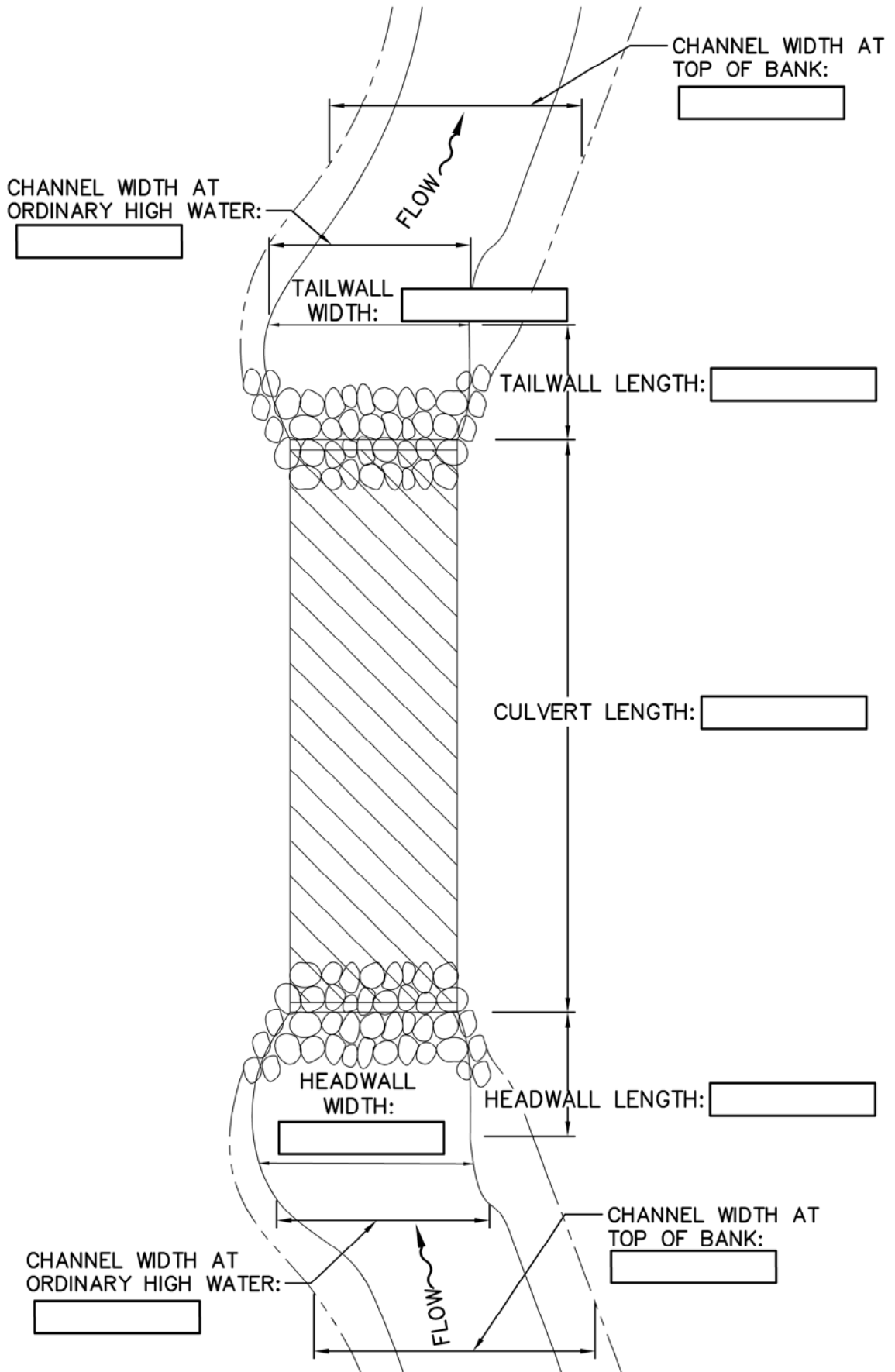
STREAM TYPE:



CULVERT – SECTION

<b>PRELIMINARY JURISDICTIONAL DETERMINATION</b>			
	<b>PARK NAME:</b> <input style="width: 90%;" type="text"/>	SCALE NONE	SHEET NO. 1
	<b>PROJECT NAME:</b> <input style="width: 90%;" type="text"/>	DATE <input style="width: 60%;" type="text"/>	OF 2
	<b>UNIQUE CODE:</b> <input style="width: 60%;" type="text"/>	<b>EAST BAY REGIONAL PARK DISTRICT</b>	





**PRELIMINARY JURISDICTIONAL DETERMINATION**



PARK NAME:

PROJECT NAME:

UNIQUE CODE:

SCALE NONE

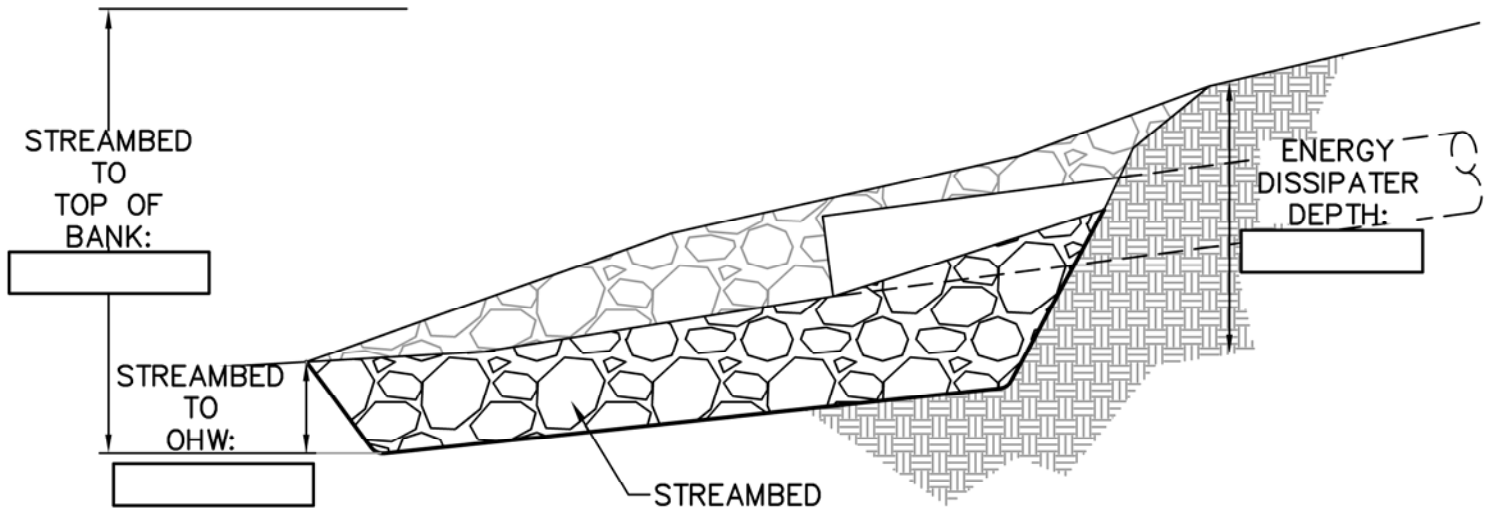
DATE

SHEET NO.  
2  
OF  
2

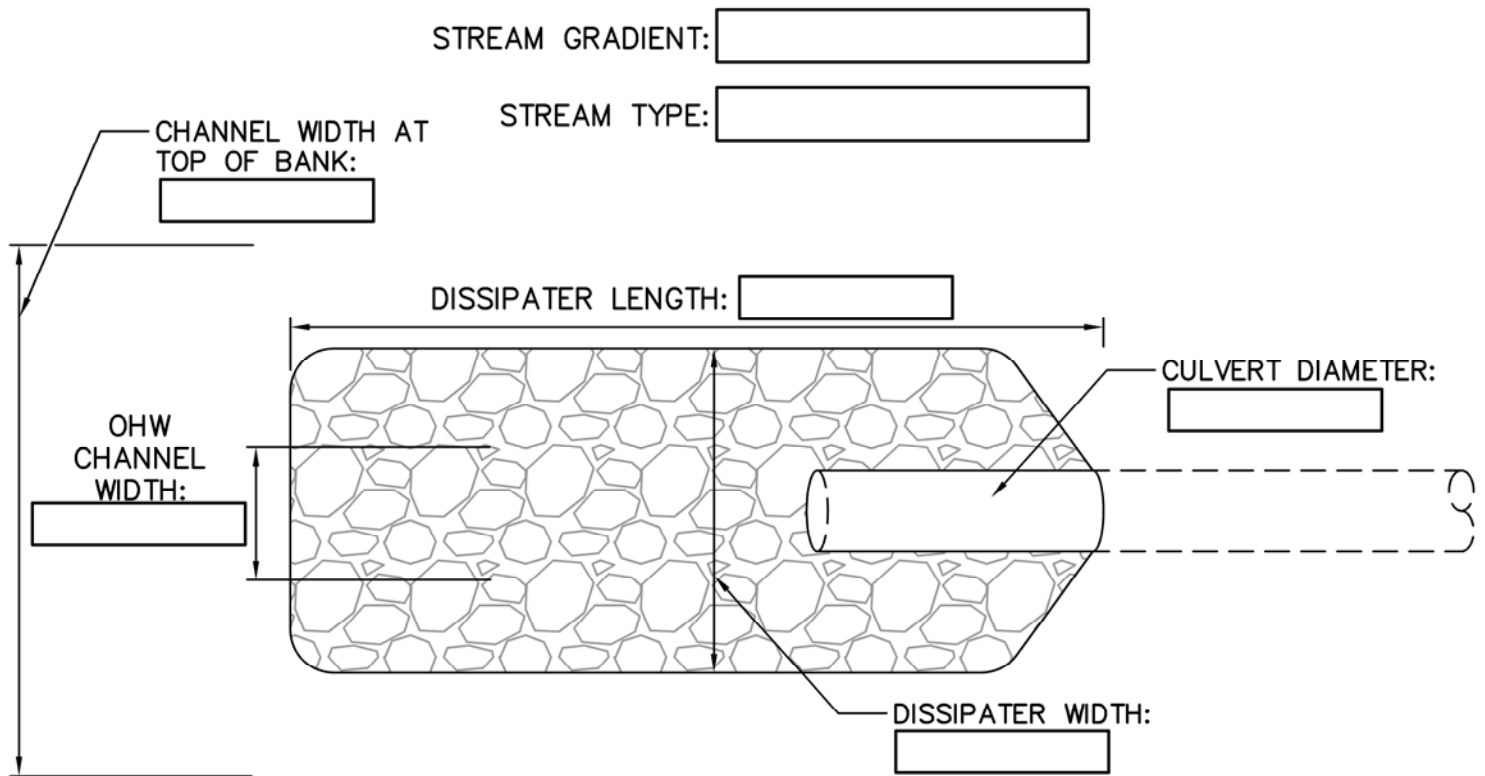
**EAST BAY REGIONAL PARK DISTRICT**




# ENERGY DISSIPATER



ENERGY DISSIPATER – LONGITUDINAL SECTION

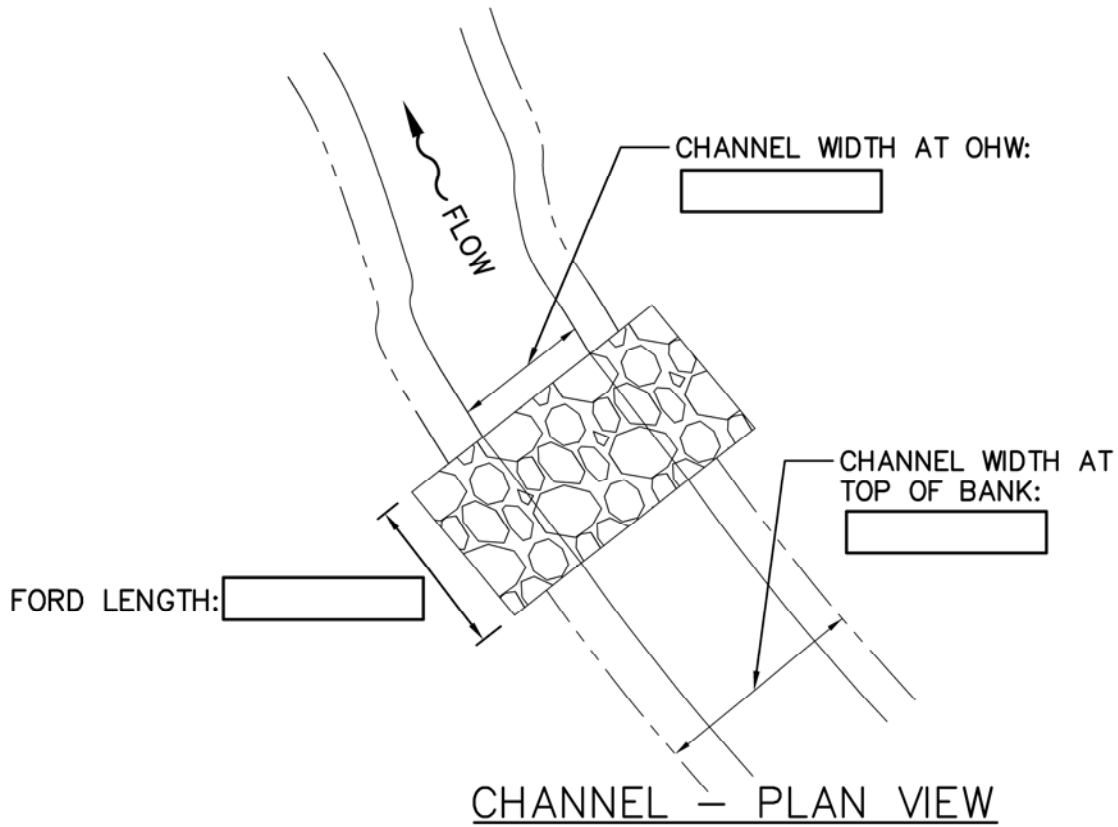


ENERGY DISSIPATER – PLAN VIEW

<b>PRELIMINARY JURISDICTIONAL DETERMINATION</b>				
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	<b>PROJECT NAME:</b> <input style="width: 90%;" type="text"/>	DATE <input style="width: 80%;" type="text"/>	OF 1	
	<b>UNIQUE CODE:</b> <input style="width: 80%;" type="text"/>	<b>EAST BAY REGIONAL PARK DISTRICT</b>		

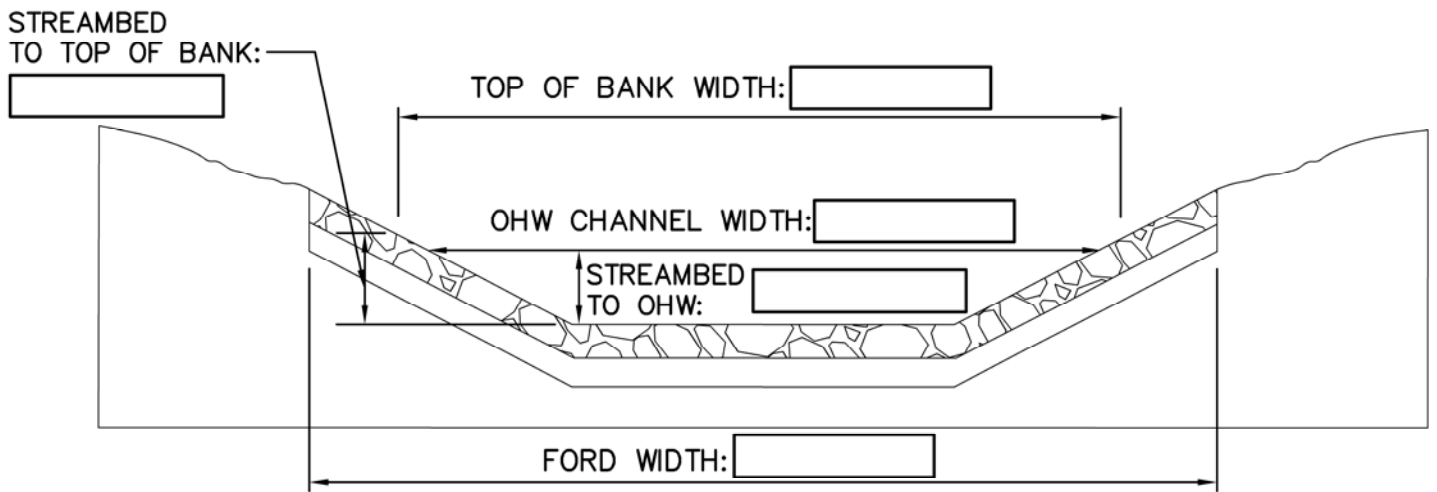


# MAINTENANCE AND INSTALLATION OF ARMORED OR NATURAL ROCK FORDS



STREAM GRADIENT:

STREAM TYPE:

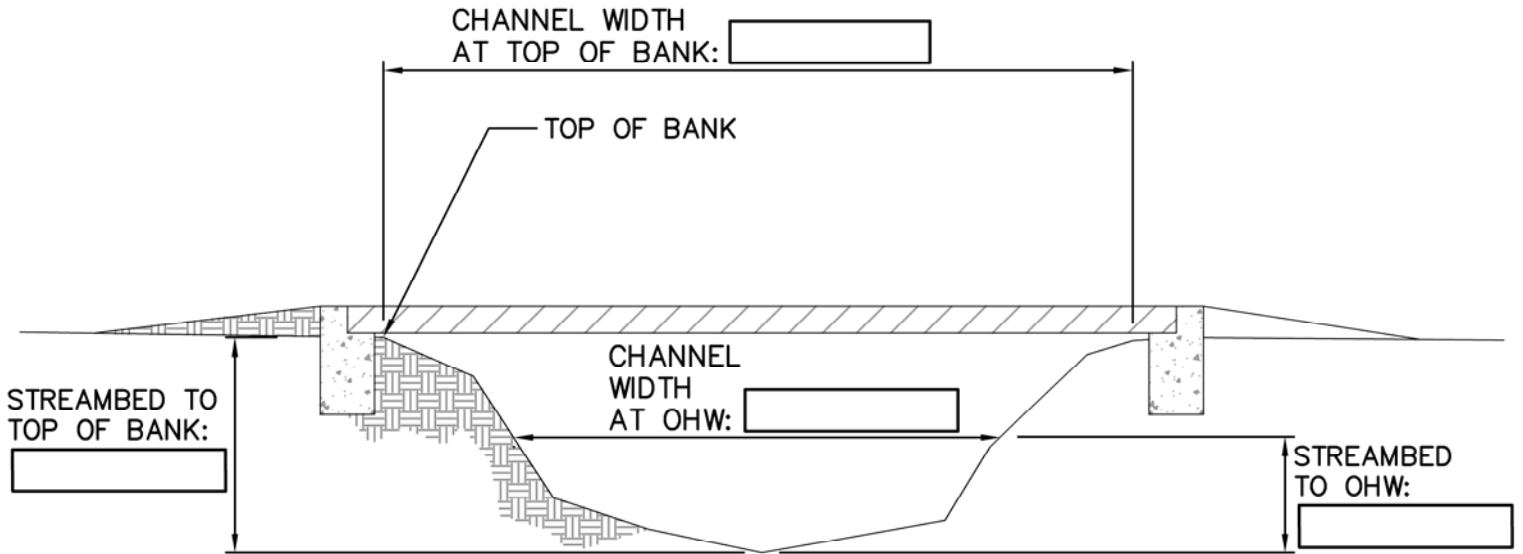


<b>PRELIMINARY JURISDICTIONAL DETERMINATION</b>			
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	<b>PROJECT NAME:</b> <input style="width: 90%;" type="text"/>	DATE <input style="width: 80%;" type="text"/>	OF 1
	<b>UNIQUE CODE:</b> <input style="width: 80%;" type="text"/>	<b>EAST BAY REGIONAL PARK DISTRICT</b>	





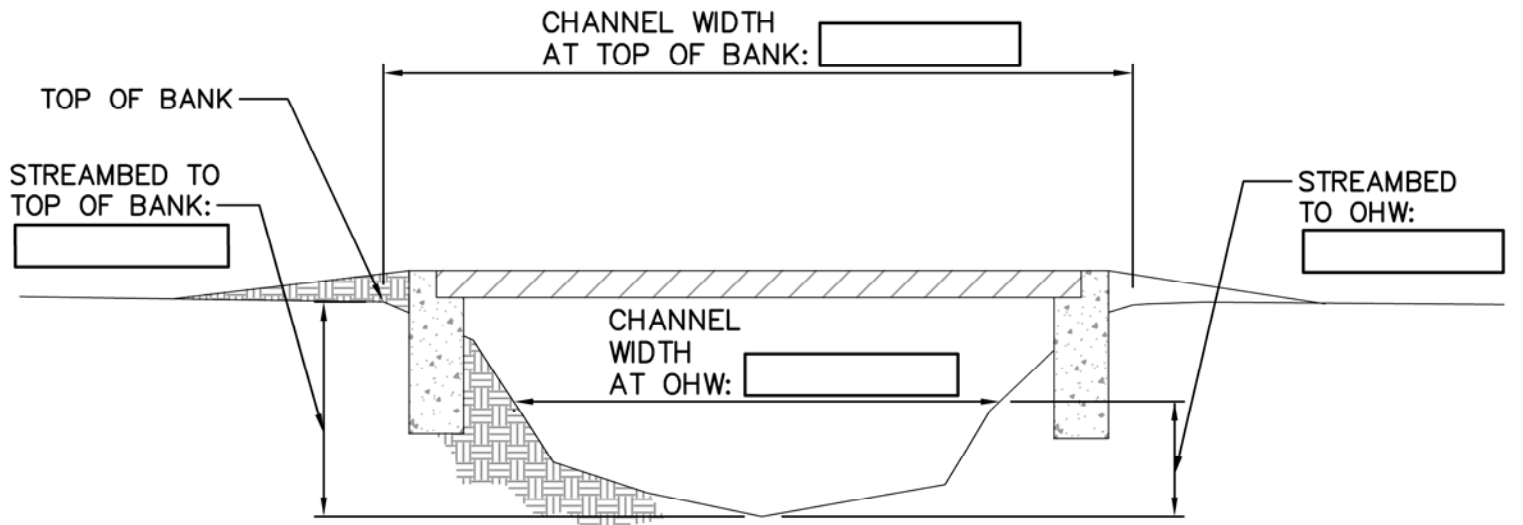
# MAINTENANCE AND INSTALLATION OF CLEAR-SPAN BRIDGES




CLEAR-SPAN BRIDGE – FOOTINGS OUTSIDE OF TOP OF BANK

STREAM GRADIENT:

STREAM TYPE:

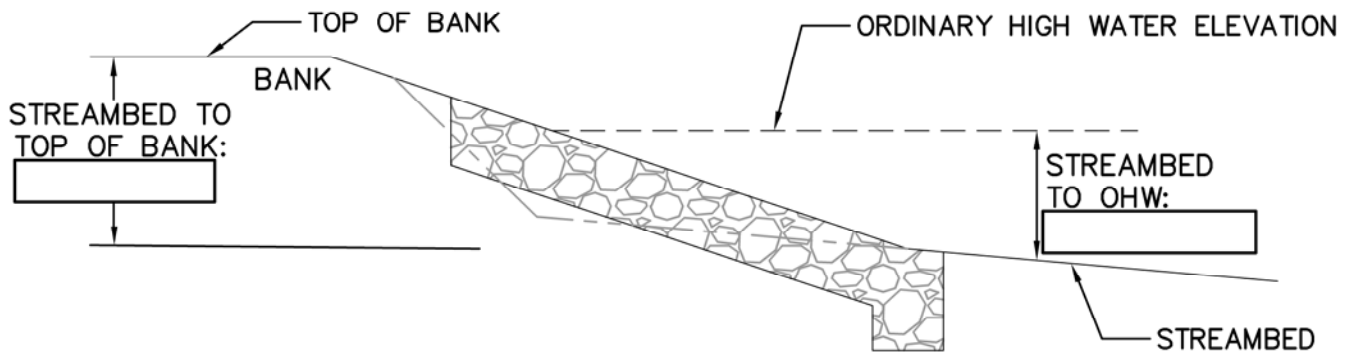


CLEAR-SPAN BRIDGE – FOOTINGS INSIDE OF TOP OF BANK

<b>PRELIMINARY JURISDICTIONAL DETERMINATION</b>			
	PARK NAME: <input style="width: 95%;" type="text"/>	SCALE NONE	SHEET NO. 1
	PROJECT NAME: <input style="width: 95%;" type="text"/>	DATE <input style="width: 80%;" type="text"/>	OF 1
	UNIQUE CODE: <input style="width: 80%;" type="text"/>	<b>EAST BAY REGIONAL PARK DISTRICT</b>	



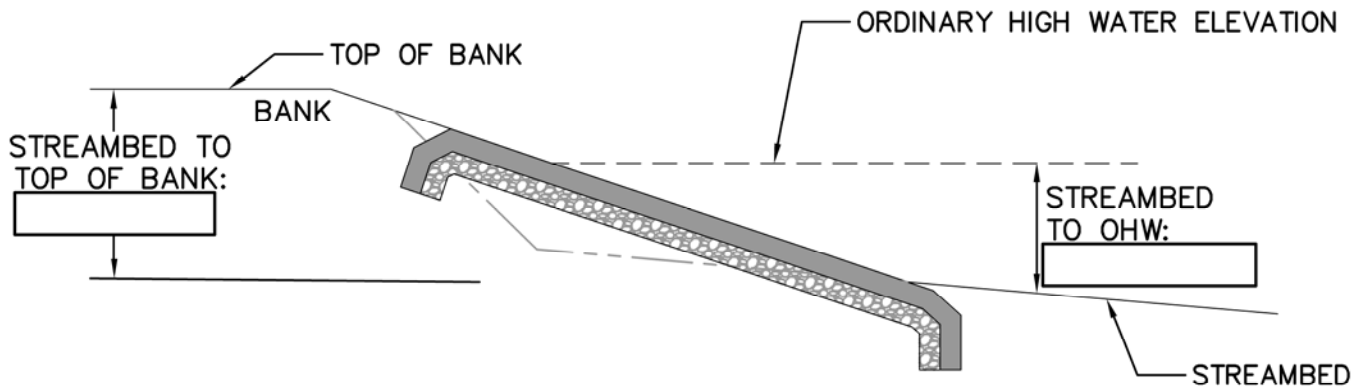
# STREAMBANK STABILIZATION: LOTIC WATERBODIES




## RIPRAP – SECTION

STREAM GRADIENT:

STREAM TYPE:

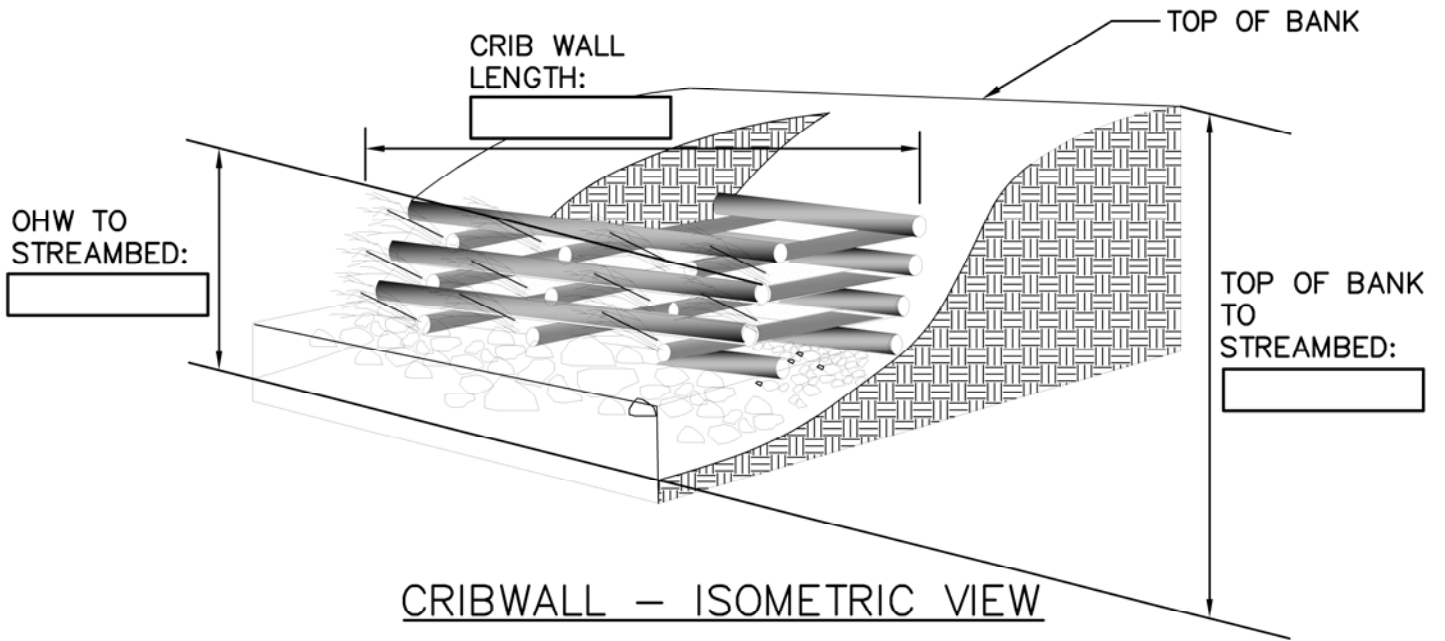


## MODULAR CONCRETE UNIT ARMOR – SECTION

PRELIMINARY JURISDICTIONAL DETERMINATION			
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	PROJECT NAME: <input type="text"/>	DATE <input type="text"/>	OF 1
	UNIQUE CODE: <input type="text"/>	<b>EAST BAY REGIONAL PARK DISTRICT</b>	



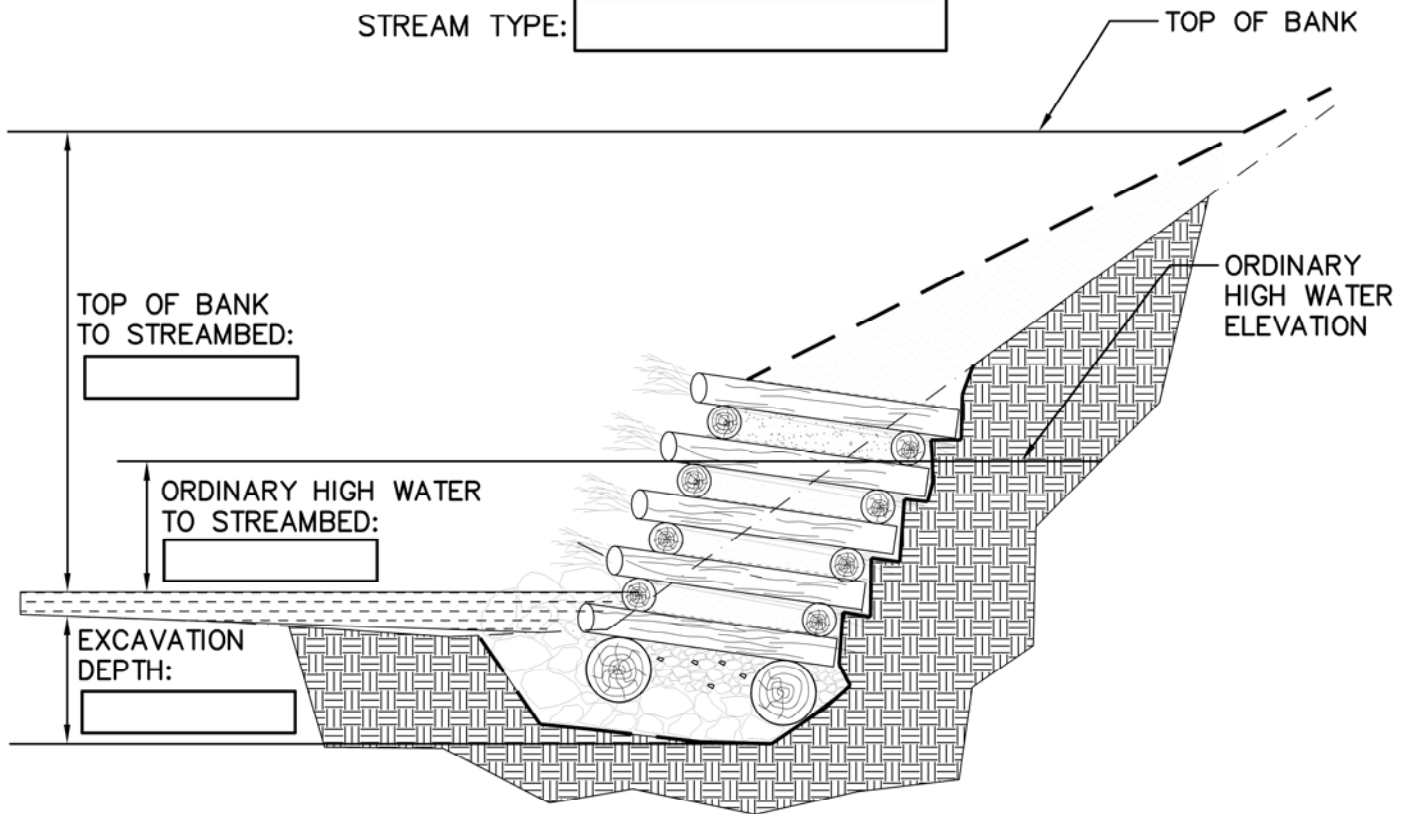
# STREAMBANK STABILIZATION: LOG CRIBWALL




**CRIBWALL – ISOMETRIC VIEW**

STREAM GRADIENT:

STREAM TYPE:

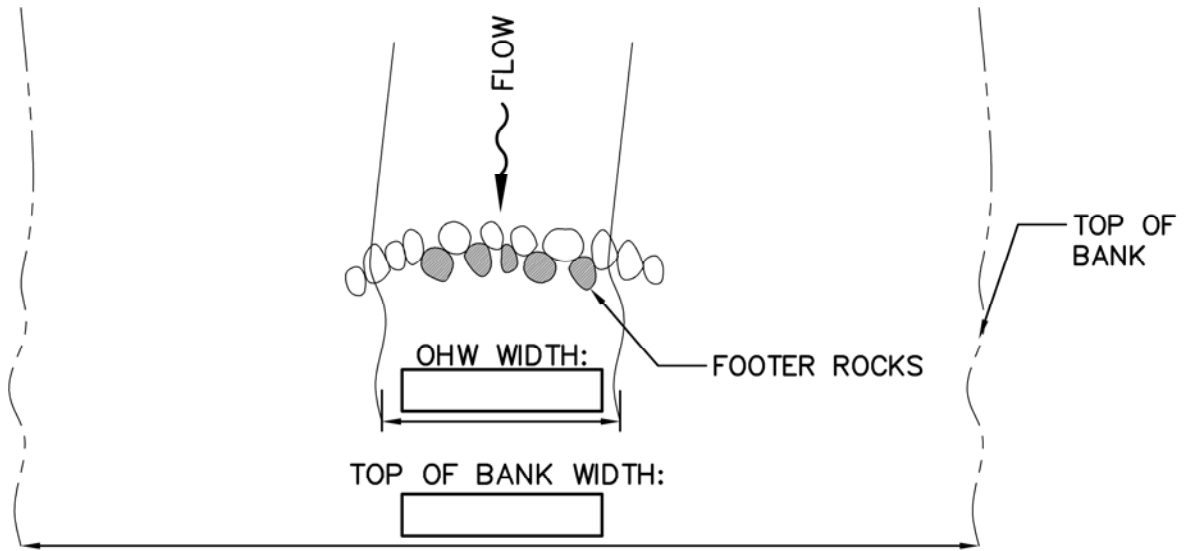


**LOG CRIB WALL – SECTION**

PRELIMINARY JURISDICTIONAL DETERMINATION			
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	PROJECT NAME: <input type="text"/>	DATE <input type="text"/>	OF 1
	UNIQUE CODE: <input type="text"/>	<b>EAST BAY REGIONAL PARK DISTRICT</b>	



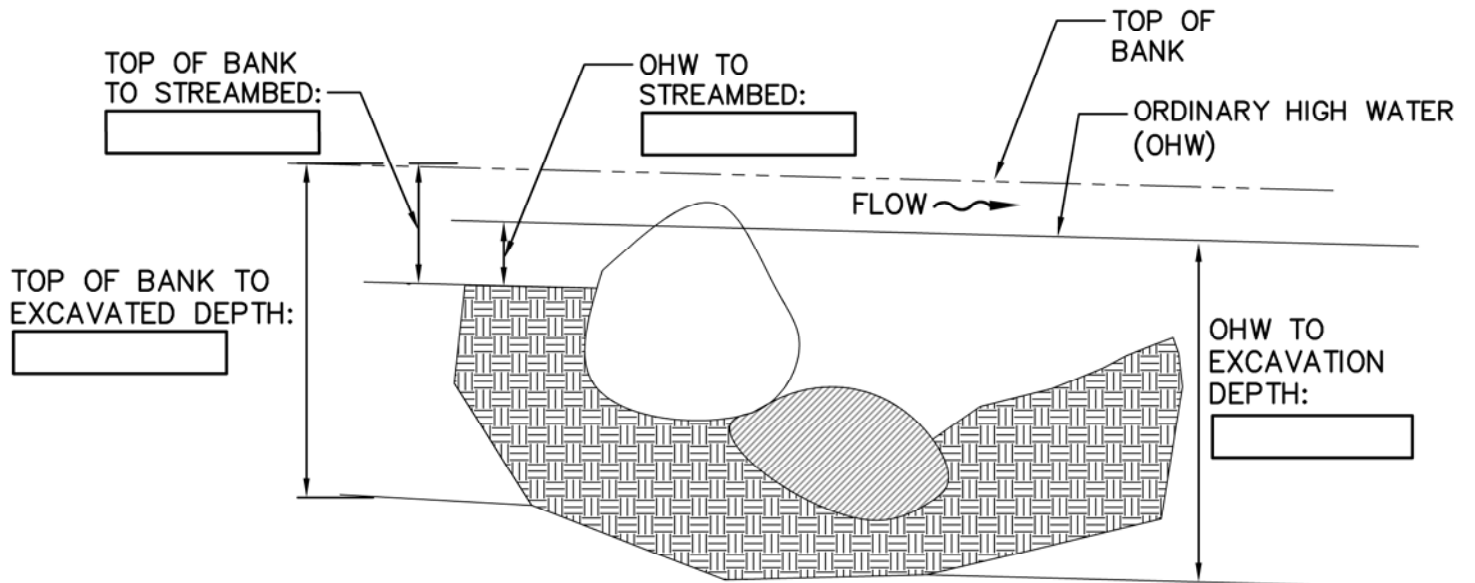
# STREAMBANK STABILIZATION: ROCK WEIR



ROCK WEIR – PLAN VIEW

STREAM GRADIENT:

STREAM TYPE:



ROCK WEIR – SECTION

\*ADAPTED FROM THE CALIFORNIA SALMONID STREAM HABITAT RESTORATION MANUAL

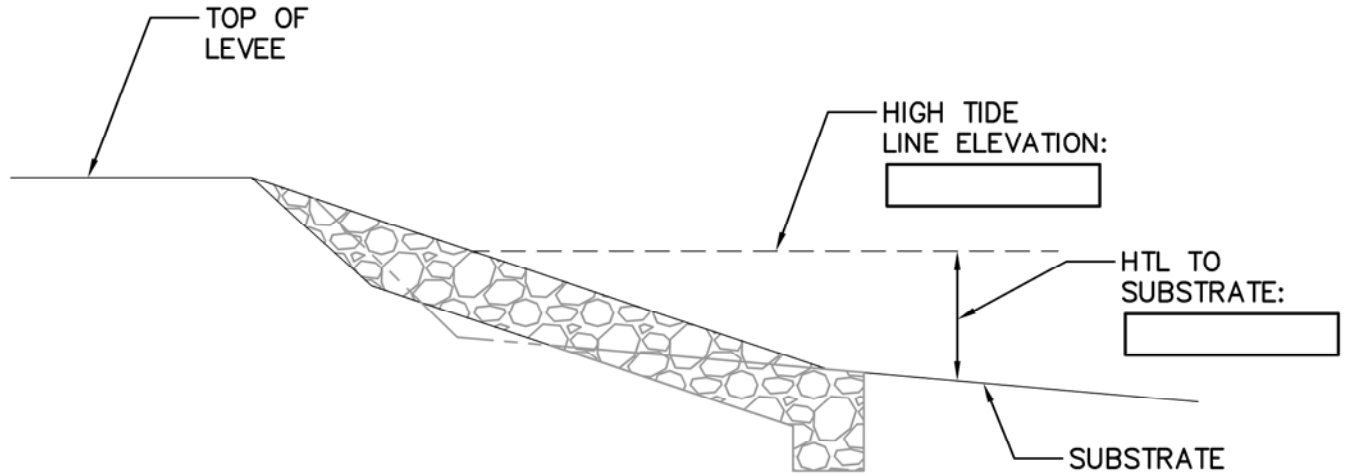
## PRELIMINARY JURISDICTIONAL DETERMINATION

	PARK NAME: <input type="text"/>	SCALE NONE	SHEET NO. 1
	PROJECT NAME: <input type="text"/>	DATE <input type="text"/>	OF 1
	UNIQUE CODE: <input type="text"/>	<b>EAST BAY REGIONAL PARK DISTRICT</b>	

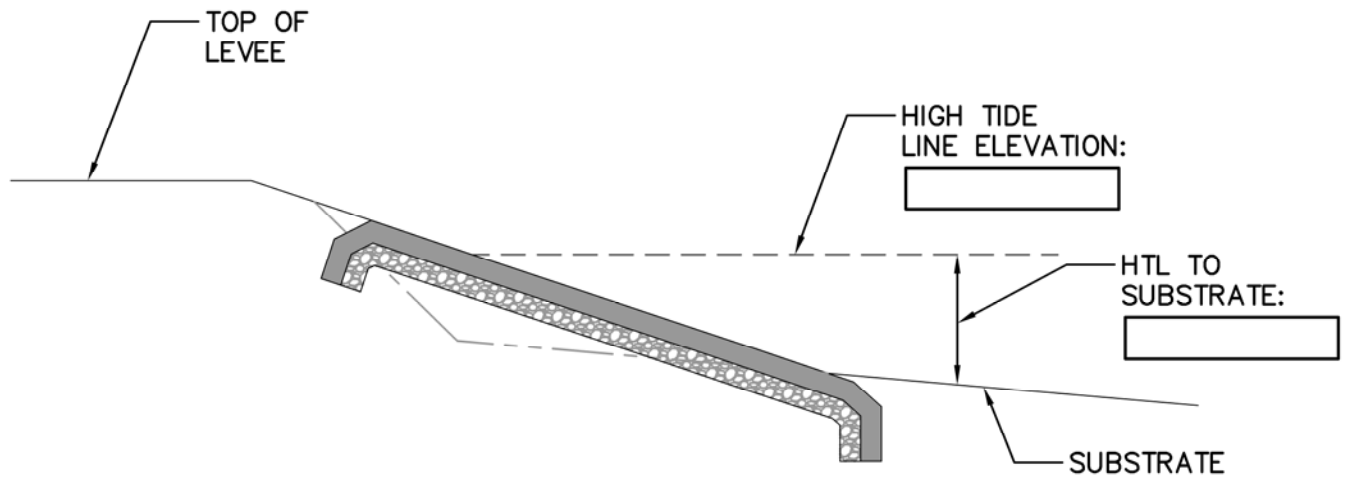





# BANK STABILIZATION: SHORELINE AND LEVEE BAY-DELTA TIDAL CHANNELS



RIPRAP – SECTION

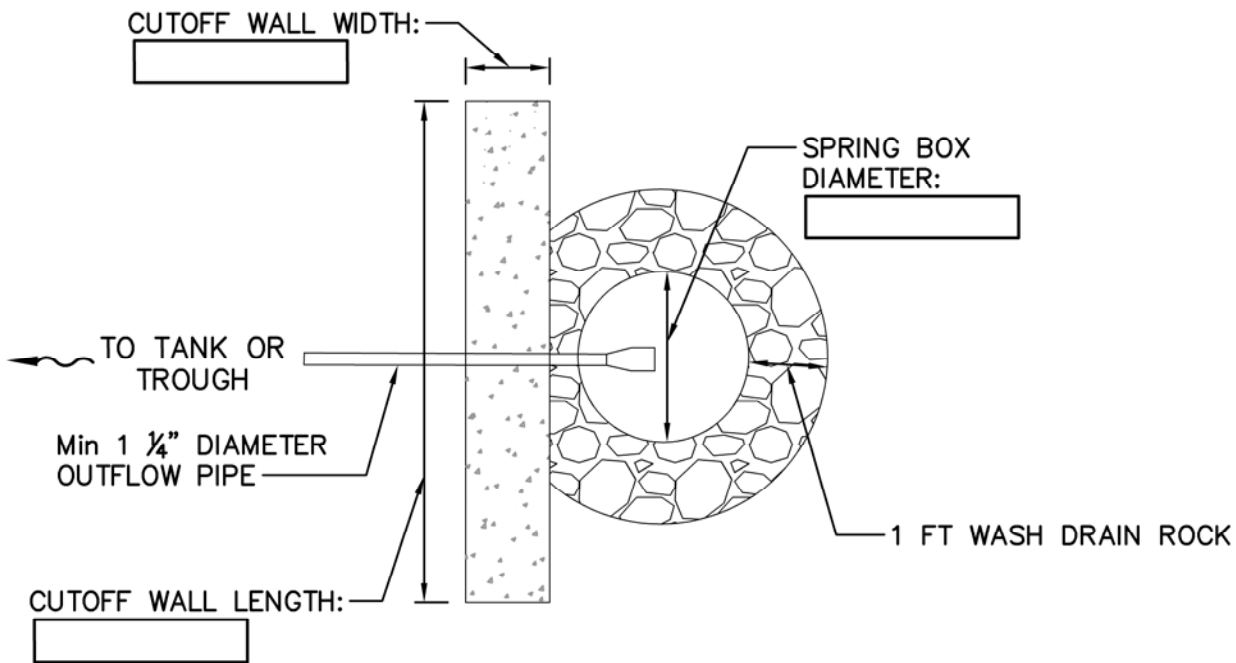
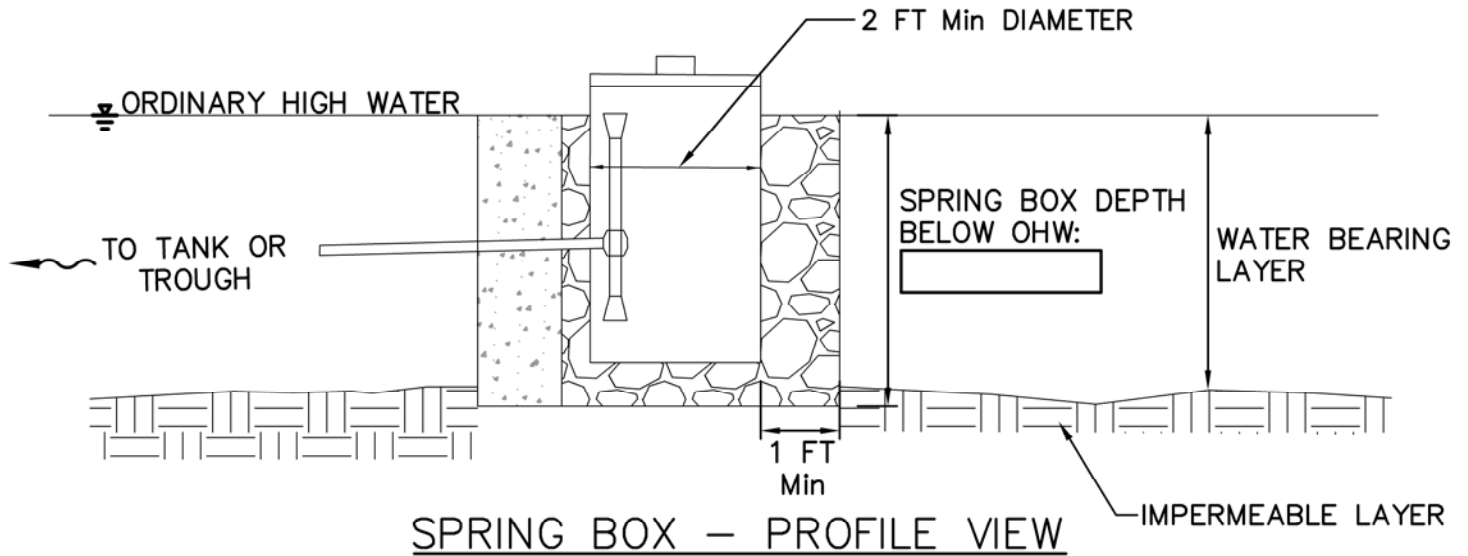


MODULAR CONCRETE UNIT ARMOR – SECTION

<b>PRELIMINARY JURISDICTIONAL DETERMINATION</b>			
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	PROJECT NAME: <input style="width: 90%;" type="text"/>	DATE: <input style="width: 80%;" type="text"/>	OF 1
	UNIQUE CODE: <input style="width: 80%;" type="text"/>	<b>EAST BAY REGIONAL PARK DISTRICT</b>	



# MAINTENANCE AND INSTALLATION OF SPRING BOXES

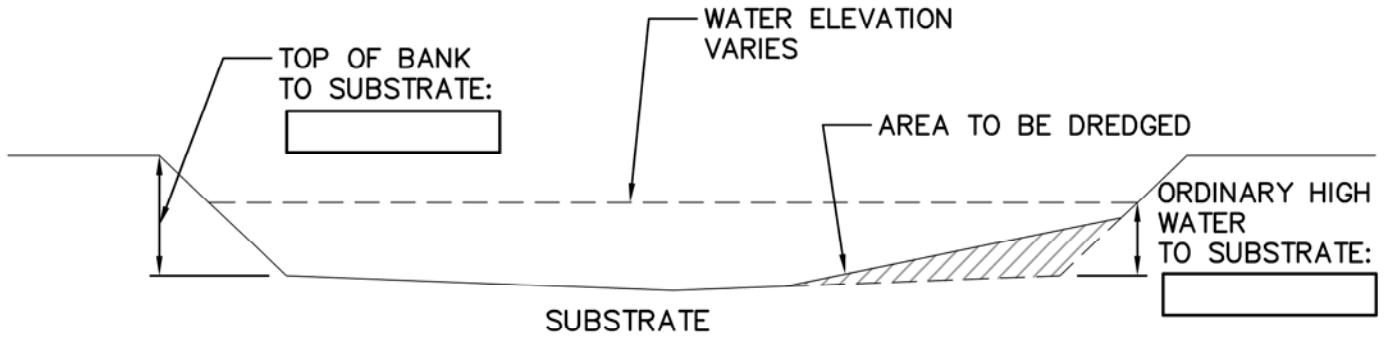


\*ADAPTED FROM THE NATURAL RESOURCES CONSERVATION SERVICE

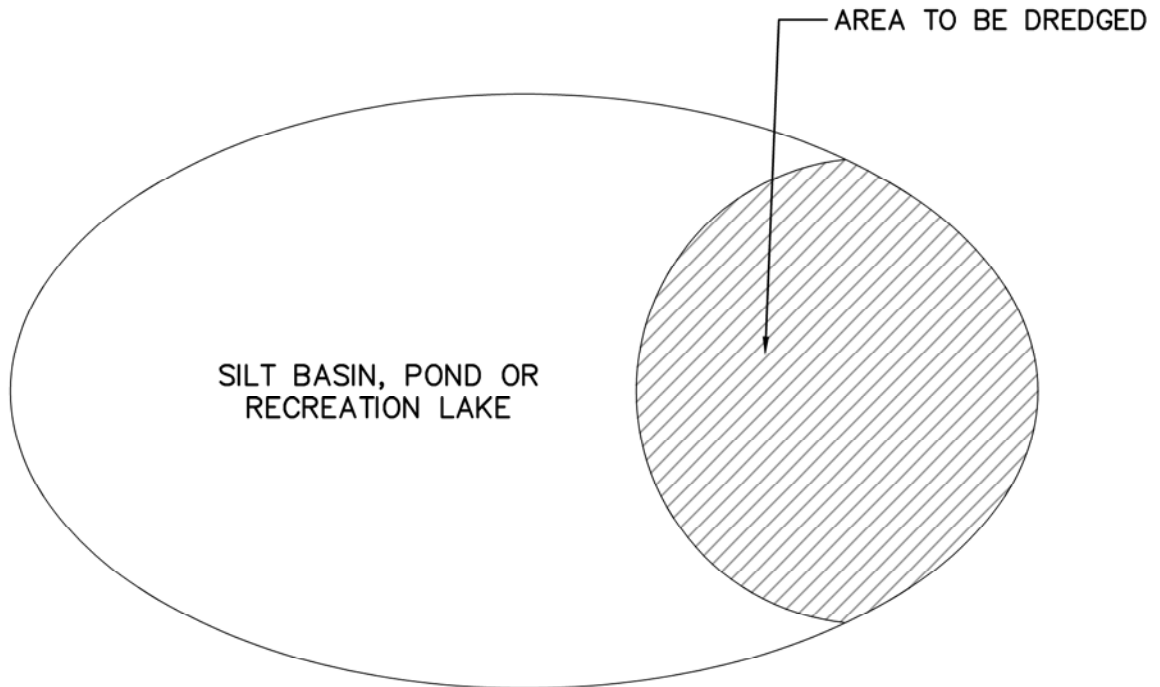
<b>PRELIMINARY JURISDICTIONAL DETERMINATION</b>			
	<b>PARK NAME:</b> <input style="width: 90%;" type="text"/>	SCALE NONE	SHEET NO. 1
	<b>PROJECT NAME:</b> <input style="width: 90%;" type="text"/>	DATE <input style="width: 80%;" type="text"/>	OF 1
	<b>UNIQUE CODE:</b> <input style="width: 80%;" type="text"/>	<b>EAST BAY REGIONAL PARK DISTRICT</b>	




# MAINTENANCE AND DREDGING OF SILT BASINS, PONDS, AND LAKES



SEDIMENT DREDGING – SECTION

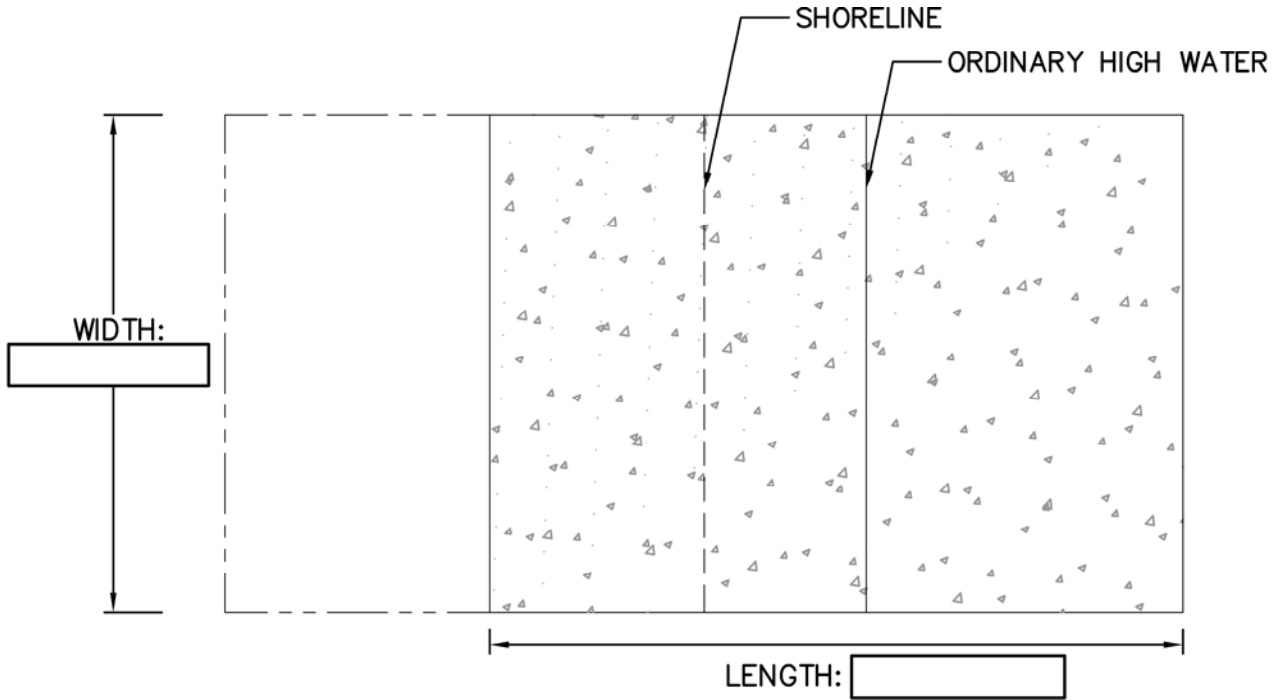


SEDIMENT DREDGING – PLAN VIEW

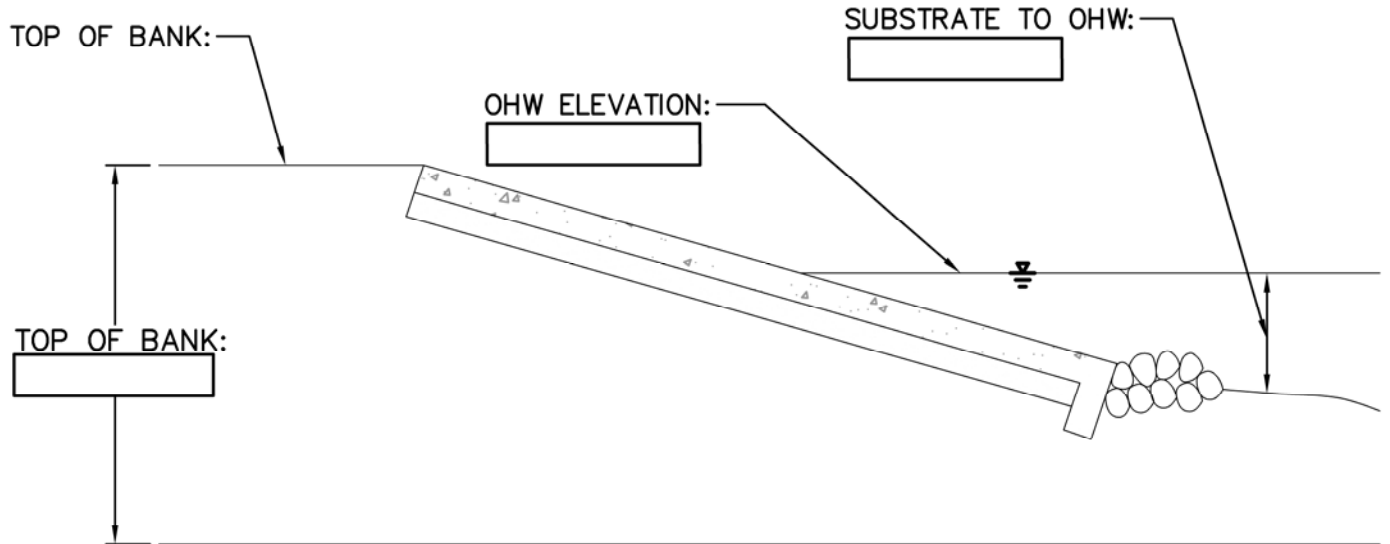
<b>PRELIMINARY JURISDICTIONAL DETERMINATION</b>				
	<b>PARK NAME:</b> <input style="width: 90%;" type="text"/>	<b>SCALE</b> NONE	<b>SHEET NO.</b> 1	
	<b>PROJECT NAME:</b> <input style="width: 90%;" type="text"/>	<b>DATE</b> <input style="width: 80%;" type="text"/>	OF 1	
	<b>UNIQUE CODE:</b> <input style="width: 60%;" type="text"/>	<b>EAST BAY REGIONAL PARK DISTRICT</b>		




# SHORELINE FACILITIES: BOAT RAMP - LENTIC



BOAT RAMP - PLAN VIEW



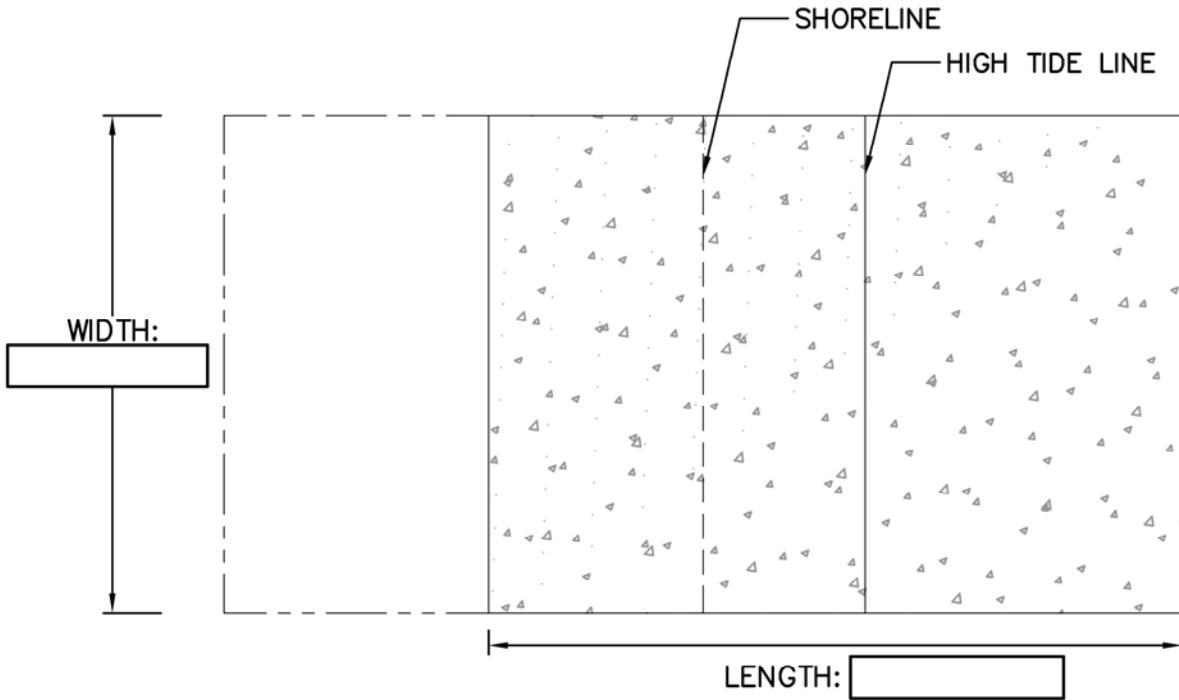
BOAT RAMP - SECTION

PRELIMINARY JURISDICTIONAL DETERMINATION			
	PARK NAME: <input type="text"/>	SCALE NONE	SHEET NO. 1
	PROJECT NAME: <input type="text"/>	DATE <input type="text"/>	OF 1
	UNIQUE CODE: <input type="text"/>	<b>EAST BAY REGIONAL PARK DISTRICT</b>	

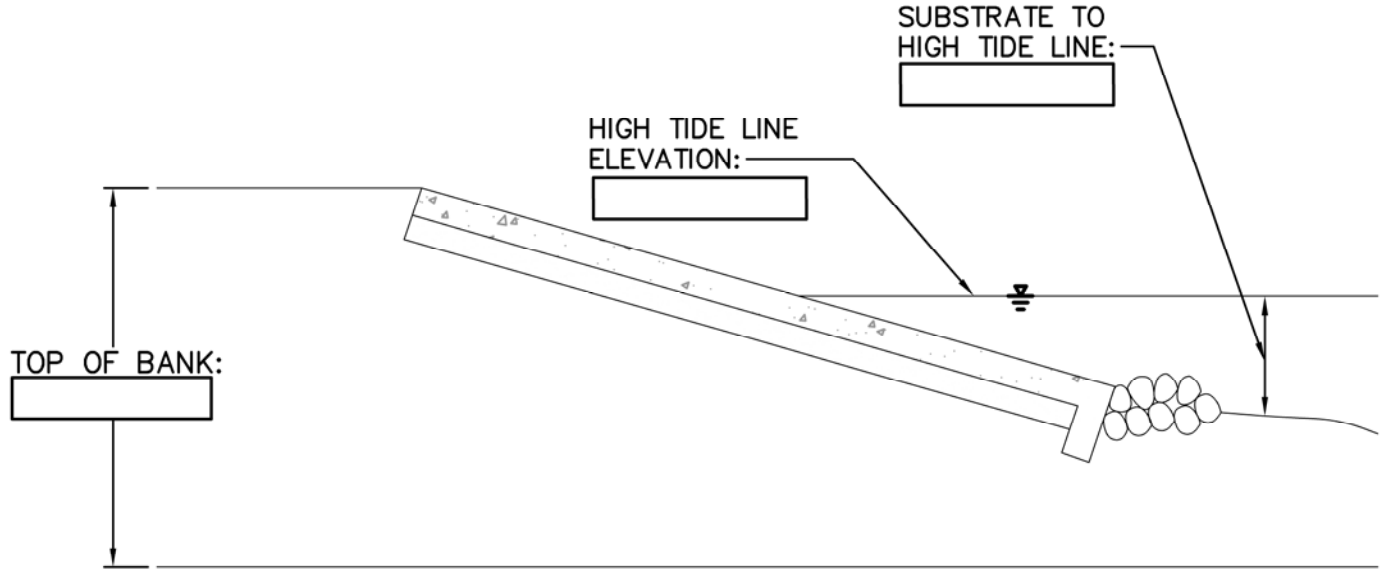





# SHORELINE FACILITIES: BOAT RAMP - TIDAL



BOAT RAMP – PLAN VIEW

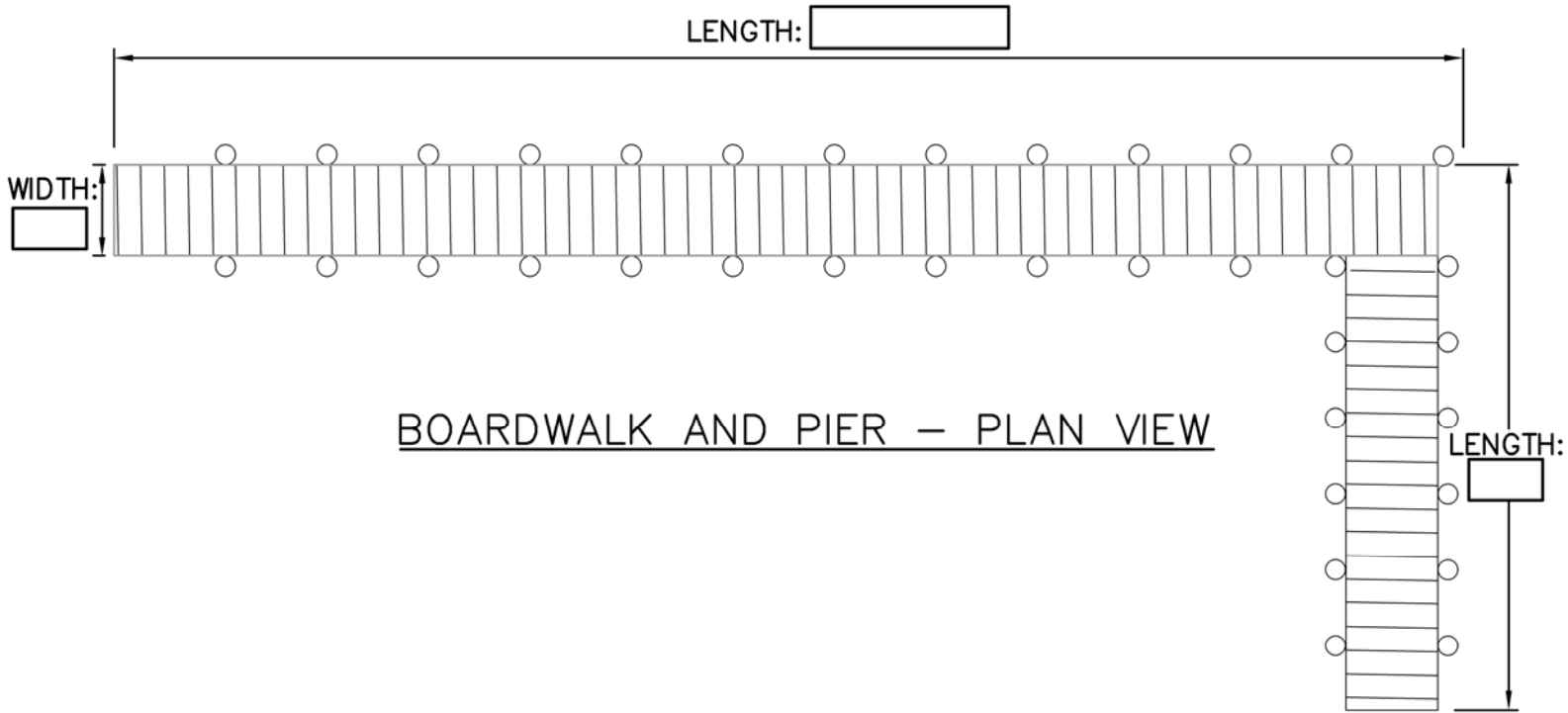


BOAT RAMP – SECTION


PRELIMINARY JURISDICTIONAL DETERMINATION			
	PARK NAME: <input type="text"/>	SCALE NONE	SHEET NO. 1
	PROJECT NAME: <input type="text"/>	DATE <input type="text"/>	OF 1
	UNIQUE CODE: <input type="text"/>	<b>EAST BAY REGIONAL PARK DISTRICT</b>	



# SHORELINE FACILITIES: BOARDWALK AND PIER - LENTIC AND LOTIC WATERBODIES

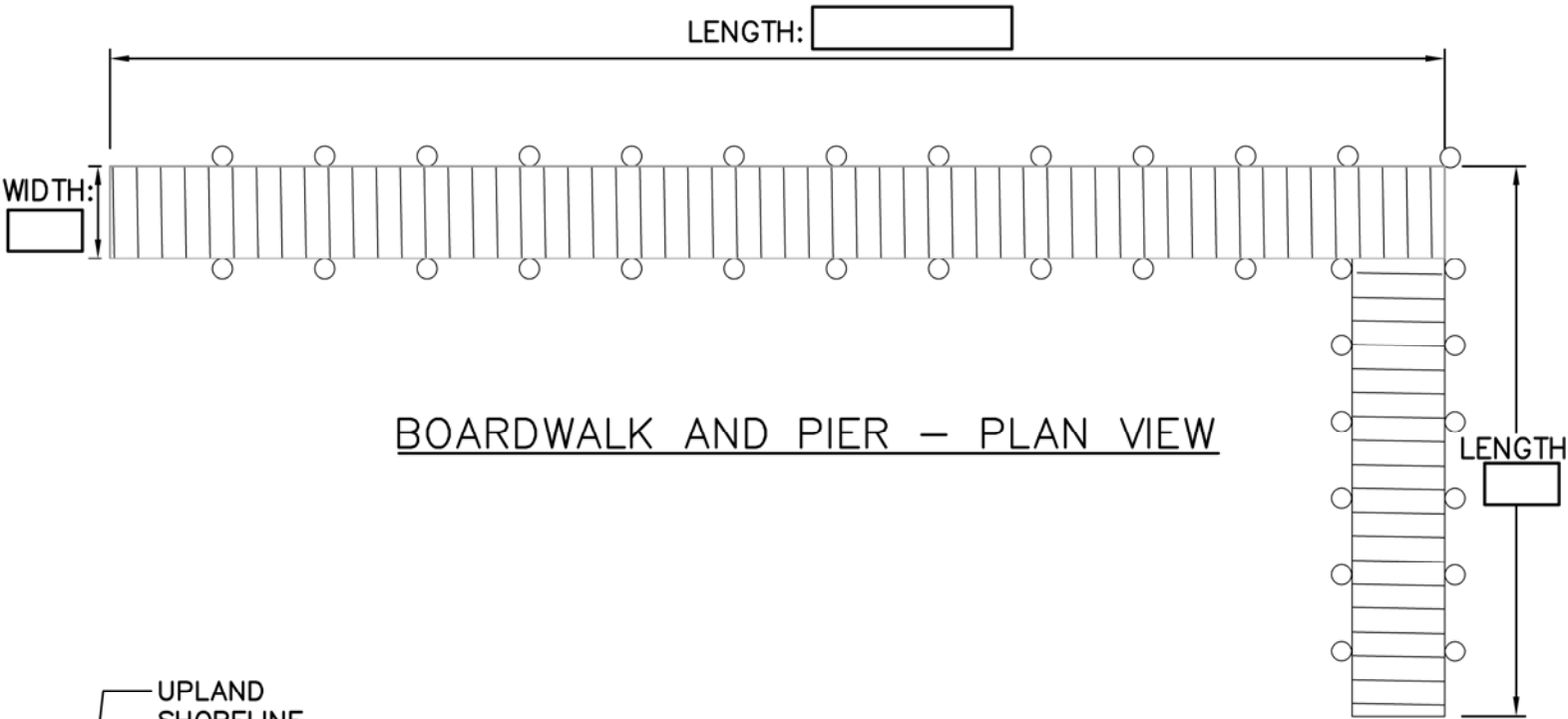


- TOTAL NUMBER OF PILINGS: [ ]
- PILING DIAMETER: [ ]
- A. Max PILING DEPTH SUBSTRATE TO PIER: [ ]
- B. Max PILING DEPTH BELOW SUBSTRATE: [ ]
- C. SUBSTRATE TO ORDINARY HIGH WATER (Max): [ ]
- D. SUBSTRATE TO TOP OF BANK (Max): [ ]

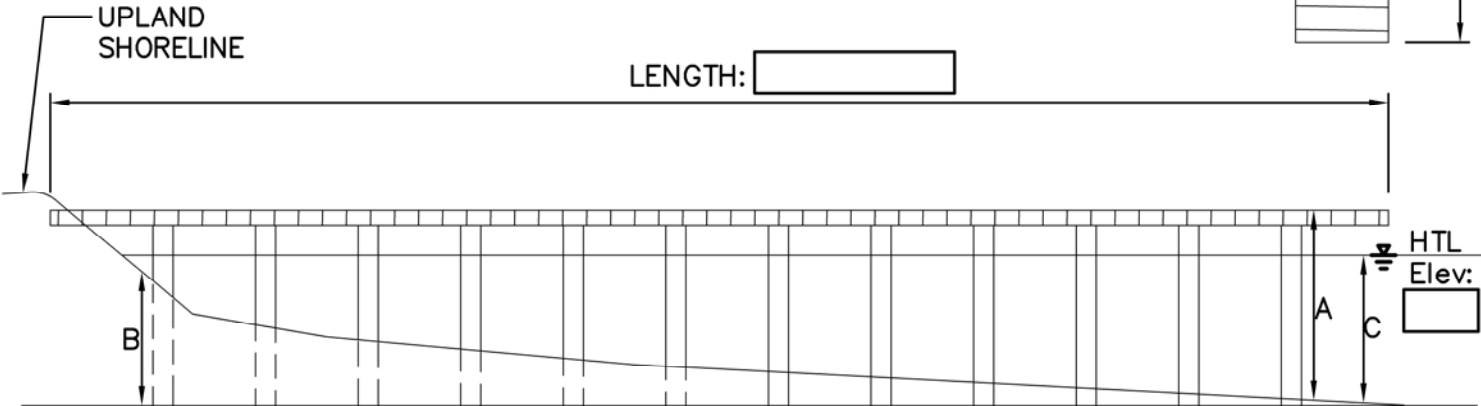
<b>PRELIMINARY JURISDICTIONAL DETERMINATION</b>			
	PARK NAME: [ ]	SCALE NONE	SHEET NO. 1
	PROJECT NAME: [ ]	DATE [ ]	OF 1
	UNIQUE CODE: [ ]	<b>EAST BAY REGIONAL PARK DISTRICT</b>	



# SHORELINE FACILITIES: BOARDWALK AND PIER - TIDAL



BOARDWALK AND PIER – PLAN VIEW



BOARDWALK AND PIER – SECTION

- TOTAL NUMBER OF PILINGS:
- PILING DIAMETER:
- A. Max PILING DEPTH SUBSTRATE TO PIER:
- B. Max PILING DEPTH BELOW SUBSTRATE:
- C. SUBSTRATE TO HIGH TIDE LINE ELEVATION (Max):

<b>PRELIMINARY JURISDICTIONAL DETERMINATION</b>			
	<b>PARK NAME:</b> <input style="width: 90%;" type="text"/>	SCALE NONE	SHEET NO. 1
	<b>PROJECT NAME:</b> <input style="width: 90%;" type="text"/>	DATE <input style="width: 80%;" type="text"/>	OF 1
	<b>UNIQUE CODE:</b> <input style="width: 80%;" type="text"/>	<b>EAST BAY REGIONAL PARK DISTRICT</b>	

