March 6, 2014

BIOLOGICAL ASSESSMENT

Santa Barbara Museum of Natural History
2014 Master Plan Project
2559 Puesta Del Sol, Santa Barbara, California

Prepared for:
Santa Barbara Museum of Natural History
2559 Puesta Del Sol
Santa Barbara, CA 93105

Prepared by:
Watershed Environmental, Inc.
3324 State Street, Suite B
Santa Barbara, CA 93105

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2559 Puesta Del Sol,
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1.0 SUMMARY OF FINDINGS

This biological assessment identified eight types of biological resource impacts that would potentially occur from proposed implementation of the Santa Barbara Museum of Natural History (SBMNH) 2014 Master Plan project. This report evaluates the short-term, long-term, direct, and indirect impacts of the proposed project per CEQA guidelines. Our (Watershed Environmental's) analysis of the 2014 Museum Master Plan project determined that with implementation of applicant proposed biological resource protection, avoidance, and impact minimization measures, that project impacts to biological resources are all less than significant; none, no impact; or beneficial. The project was also found to be consistent with all the City of Santa Barbara Conservation Element policies, and tree protection ordinances.

2.0 INTRODUCTION

This report was prepared by Watershed Environmental, Inc. under contract to the Santa Barbara Natural History Museum. This report describes the existing biological resources on the 15.43-acre Santa Barbara Museum of Natural History Museum site, located at 2559 Puesta del Sol, in the City of Santa Barbara (Figure 1). The 2014 Master Plan Museum project will occur on the 9.85 acre main campus (APN: 23-271-003, and 23-271-004) and the 5.58 acre western portion (APN: 23-250-056, 23-250-066, 23-250-068, and 23-250-039) of the Museum property (Figure 2A & 2B). The western portion of the property is undeveloped with the exception of a small, 800 sq. ft. rental residence. The main campus contains the Museum structures, the MacVeagh House, MacVeagh Cottage, the Raptor Mews, and Hazard Carriage House.

The western portion of the Museum property is located outside of the City limits and are currently within the jurisdiction of the County of Santa Barbara. The main campus is located with the City limits (refer to Figure 2A & 2B). The 2014 SBMNH Master Plan Project proposes to annex the western parcels to the City of Santa Barbara. Vehicle access to the museum property occurs from Puesta Del Sol, an asphalt-paved public roadway.

The Museum currently has 83,295 sq. ft. (gross) of buildings/structures that are used for visitor services, gatherings, exhibits, education, library/Maximus Gallery, a Collections and Research Center, administration, facilities, and support. There are also three residential units on the campus with a total floor area of 4,545 sq. ft. (gross). In addition to the buildings/structures there is a large, asphalt-paved parking lot and several smaller paved parking areas that provide 156 parking spaces (including 6 ADA spaces) for visitors, guests, and employees.

The purposes of this report are to: 1) identify existing biological resources; 2) evaluate the potential impacts of the proposed 2014 SBMNH Master Plan Project on biological resources; and 3) identify biological mitigation measures needed to avoid or reduce potential biological impacts to acceptable (less-than-significant) levels.

Reserve Page 8.5x11 Landscape
Figure 1. Location Map

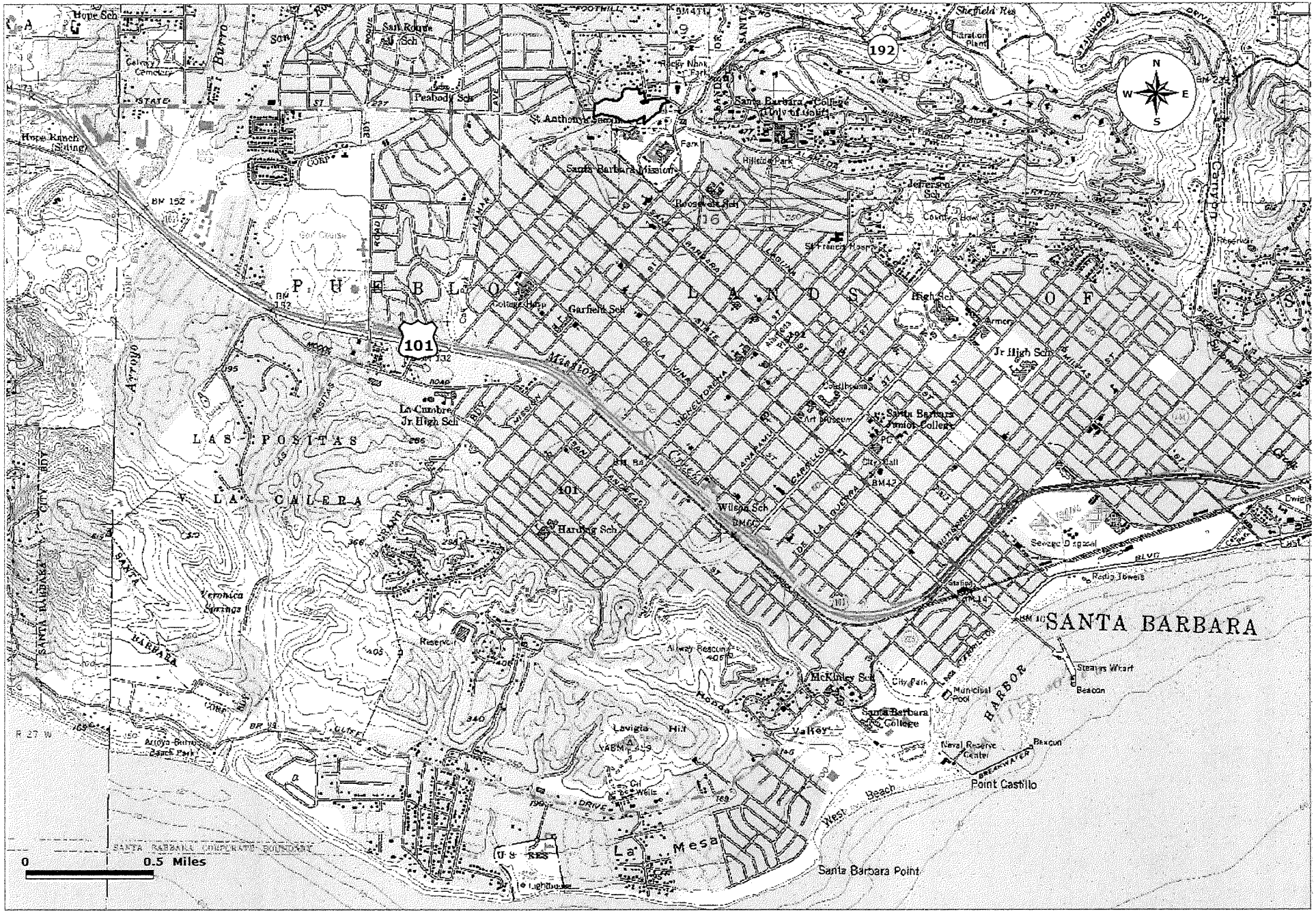

Figure 1. Location Map
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3.0 PROJECT DESCRIPTION

The Museum's 2014 Master Plan project proposes no new buildings and consists of renovation, repairs, and visitor access improvements. Project components range from a major renovation of the Marine/Paleo Exhibit Hall to interior "paint and paper" refreshments to the interior of existing buildings, replacement of the outdoor butterfly exhibit, and improvements to existing walkways to improve pedestrian circulation and universal access (Figure 2a and 2b). The project also will renovate the existing landscaping in the developed portion of the property, and includes restoration of 3.72 acres of coast live oak woodland habitat. Table 1 below provides a list of project components that may be implemented by the Museum as part of the 2014 Master Plan project. These components represent a "menu" of improvements that may be implemented by the Museum over the next 10 to15 years as funding becomes available.

Table 1. 2014 Museum Master Plan Project Components

No.	Project Component	Plan Sheet Reference
Western Parcel Site Improvements		
1	New decomposed granite pathway and boardwalk leading to new bio swale overlook	C-1, L1.2,
2	Woodland habitat restoration & conversion of a an existing drainage ditch into a bioswale	L1.2
Main Campus Site Improvements		
3	3 ADA parking spaces (permeable concrete)	C-1, L1.2
4	Relocated trash & recycling enclosure	C-1, A1.11, A4.11
5	Replace 18" diameter storm drain & raise existing drain inlet	C-1
6	New boardwalk to and around "backyard" features (fort building and paleo dig area) of approximately 1,036 sq. ft.	L1.2, C-1
7	New deck at backyard clubhouse (402 sq. ft.)	L1.2, L1.3, C-1
8	Resurface portion of backyard with engineered wood fiber and mulch	C-1, L1.2
9	Existing pond and re-circulating creek reconstruction & new filtration (existing 1,375 sq. ft.; proposed 1,200 sq. ft.)	C-1, L1.2, L1.3
10	Reconfiguration and resurface of existing asphalt pathways at various locations near CRC reconfigured and resurfaced with permeable surface to improve accessibility and ADA compliance	C-1, L1.1, L1.2
11	Resurface area around butterfly exhibit with combination of permeable surfaces (decomposed granite, permeable concrete, decorative pavers)	C-1, L2.0
12	Replace butterfly exhibit with butterfly garden exhibit, 2 stone entry vestibules, garden walls with runnel & water basins, structural "tree" supports and tensioned mesh netting; the surface area dedicated to this exhibit will increase by approximately 397 sq. ft.	L2.0, AD1.11

No.	Project Component	Plan Sheet Reference
13	Replace existing asphalt with permeable surfaces at delivery area in front of iron gates at frontage, and various locations between buildings; improve ADA compliance	C-2, L1.1
14	Create ADA compliant path of travel with permeable surface treatments (pavers and boardwalk) between whale courtyard and Museum's front entry	C-2, L1.1
15	Remove portion of asphalt south of Marine/Paleo and add new deck (1,900 sq. ft.) over asphalt between Marine/Paleo and existing pedestrian bridge	C-2, L1.1
16	Reconfigure and resurface existing pathways with permeable surfaces on south side of pedestrian bridge to improve accessibility to Broder, Coggeshall Bowl	C-2, L1.1
17	Create Chumash Village outdoor exhibit	L1.1
18	Enhance existing gardens (ethnobotany garden, native riparian garden, riparian garden, historic ornamental garden)	L1.1, L1.2
Main Campus Building Improvements		
19	Validate conversion of MacVeagh cottage (475 SF) from residential to backyard clubhouse; replace 2 exterior doors; replace existing deck and ramp, add viewing platform	AD4.11, A4.11, L1.2
20	Add HVAC unit and fence enclosure in back courtyard of MacVeagh House	A4.11
21	Remodel Marine/Paleo Hall including exterior changes (new doors and windows); create fire separation between Marine/Paleo and Gould Hall; roof modification and replacement of HVAC on roof; removal of a 276 sq. ft. roof access stair tower	A2.21, A2.22, A2.23, A3.11, A3.21, AD3.21, A4.13, AD2.21, AD2.22, AD3.11
22	Remove roof connection between Marine/Paleo and education building	, A3.12, AD2.22, AD2.23, AD3.21
23	Remodel existing bathrooms to increase fixture count includes exterior alterations and small increase in floor area of 82 sq. ft.	A2.22, A3.11, A4.13, AD2.22, AD3.11
24	Install new hydraulic lift to serve Fleischmann Basement (facilities workshops) includes low screen wall and gate	A2.22, A3.12, A3.21, A4.12
25	New HVAC equipment with fenced enclosure south of Fleischmann	A2.22, A3.12
26	Miscellaneous: conserve fountain in original quad courtyard; create opening in Hazard Estate wall to accommodate ADA compliant path to Museum entry	L1.1, A2.22, A2.31, A3.11, A4.12
27	Repairs to interiors of various Museum structures	

Working hours for construction personnel, operation of heavy equipment, and delivery of construction materials are proposed to be 8 am – 5 pm weekdays, with no construction activities on national holidays. Equipment staging, materials storage, and temporary construction worker parking would all occur onsite. Public use and access to areas within the museum property will be modified as needed to ensure public safety during construction.

Reserve Page 11x17 Landscape

Figure 2a. Site Plan Improvement (Eastern Side)

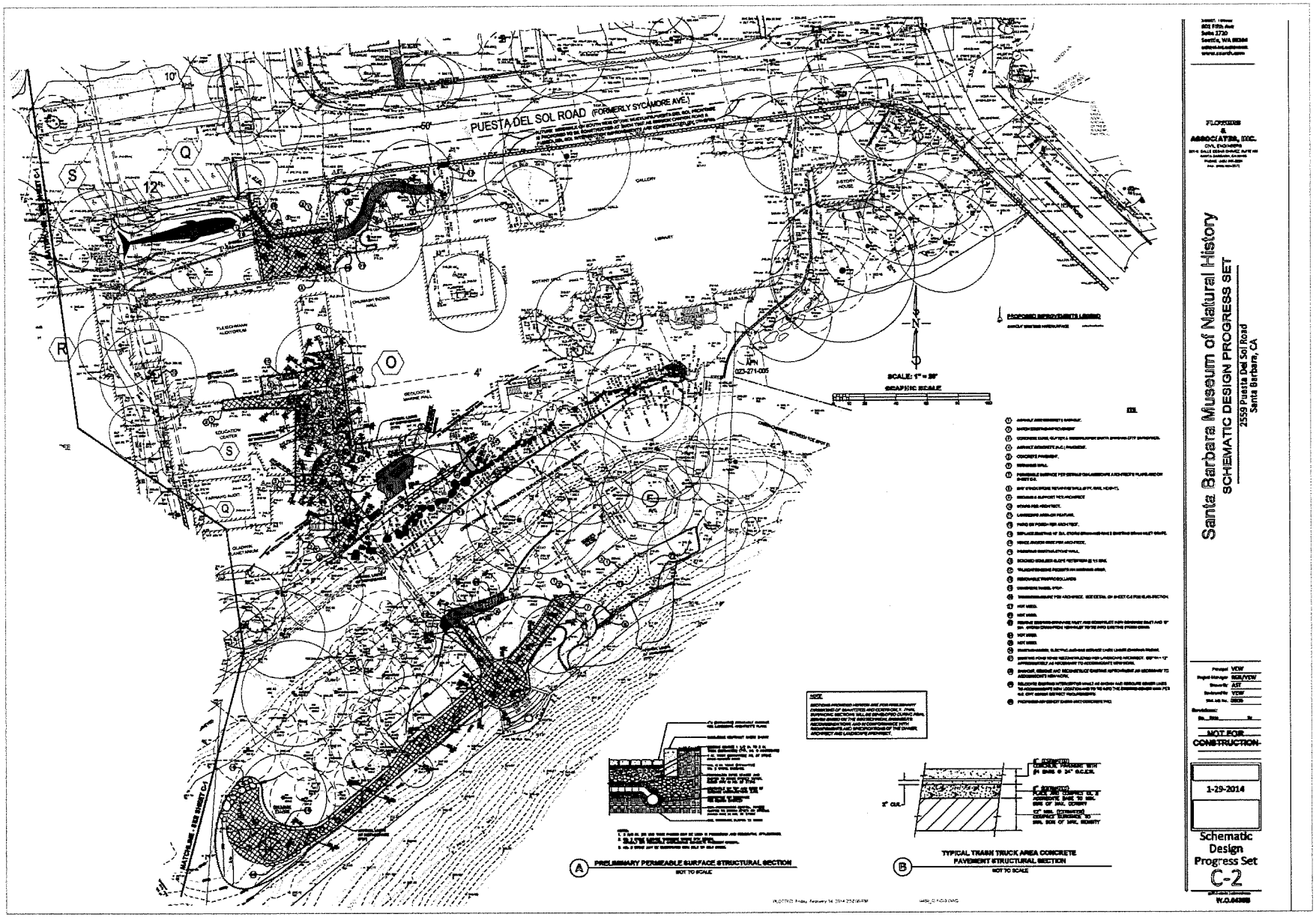

Figure 2A. Site Plan Improvements (Eastern Side)

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The Museum is participating with a stakeholder group and public agencies to create safe pedestrian access along Mission Canyon Road between the Santa Barbara Mission and Foothill Road. As part of this planning effort, improvements to the Mission Canyon Road/Puesta del Sol intersection are proposed. The Museum as part of its Master Plan will build a pedestrian sidewalk on the south side of Puesta del Sol Road between the entrance to the Museum and Mission Canyon Road at time that the improvements are made to the Mission Canyon Road/Puesta del Sol intersection.

In order to protect, avoid, and minimize impacts to biological resources the 2014 Museum Master Plan project has incorporated the following measures into its' project description:

To avoid disturbance of wildlife caused by night lighting:

- A lighting plan for each component will be prepared to ensure that exterior lighting of structures, roadways, walkways, and parking lots are shielded and directed away from the tree canopy, the creek bed, creek banks, and undisturbed woodland habitat.

To avoid disturbance of nesting birds:

- Tree removal/relocation/trimming activities shall not occur during nesting season (March 1 – July 1). If these activities must occur during this time, a qualified biologist shall conduct surveys to identify, no more than one week prior to the activity, active nests and nest holes. The biologist shall map the location of all active and inactive nests and nest holes in trees. A 300-foot radius, no-disturbance buffer shall be established around trees containing active nests and this buffer shall be maintained until the biologist has verified that young fledglings have left the nest.

To ensure protection of surface water quality, and protection of Federally endangered southern steelhead and their aquatic habitat

- A Storm Water Pollution Prevention Plan with appropriate erosion/sediment control devices will be implemented between the construction area and Mission Creek. An erosion and sediment control plan that satisfies City of Santa Barbara requirements will be prepared and included in the construction drawings of each project component.
- Prior to the start of any demolition or construction activity within 100 ft. of the topographic top of the creek bank, the perimeter of the work area shall be fenced and sediment and erosion control materials shall be installed to prevent demolition debris, soil, sediment, and other contaminates from falling or washing down into Mission Creek.

To avoid and reduce impacts to native trees these 17 tree protection measures will be implemented prior to and during project construction:

1. Trees, in close proximity to proposed areas of disturbance will be inspected by an arborist prior to construction to determine specific needs. The arborist may determine that specific trees within the construction zone warrant irrigation or mulch prior to commencement of construction.

2. Appropriate preparation of trees is proposed including, root pruning one side of the tree per year, well in advance of construction and preferably in the fall or winter, to reduce the cumulative impacts in the construction zone.
3. A pre-construction meeting will be held with contractors to make clear the tree protection actions and requirements.
4. Six-foot chain link fencing will be installed to establish tree protection zones (TPZs). These TPZs should be at the outside edge of work areas, around trees. Fences must be maintained in upright positions throughout the duration of the project. Fences will be marked at 10' to 20' spans with signage (in English and Spanish) indicating the tree protection zone. Tree protection fencing will remain upright during landscape installation unless sections need to be removed to accommodate approved work.
5. The TPZs will be void of all activities, including parking vehicles, operation of equipment, storage of materials and dumping (including temporary spoils from excavation).
6. During demolition within the critical root zones (CRZs) of trees, fencing may need to be temporarily adjusted to allow access to the work site. Hand tools can lessen the impact to trees and will be considered as an alternative to heavy equipment. Prior to work, evaluation will be done to determine the most practical and least invasive method.
7. After demolition, exposed roots and soil may need to be covered with mulch or other protective material and possibly irrigated until the final surface is replaced. Each area of demolition should be assessed for its needs at that time.
8. All excavation and grading in close proximity to existing trees will be monitored by a certified arborist.
9. Excavation within the CRZs but outside of the TPZs, will be done by hand where reasonable. Any roots encountered that are ½" and greater will be cleanly cut. This may have been done prior to commencement of the project as per item #2 above. The arborist may determine that newly exposed soil profiles be kept moist with supplemental watering or installation of vertical barriers that keep roots covered and protected from physical damage and desiccation.
10. Any tree pruning, where limbs may conflict with equipment and proposed structures, or where deadwood may pose risks, will be done prior to excavation, grading, or any additional work below the crown.
11. Pruning of oaks, when possible, will be done in the cooler months, avoiding high insect activity.
12. Pruning will be performed or supervised by an arborist. The arborist will review the goals with workers prior to commencement of any tree pruning. Tree workers will be knowledgeable of *ISA Best Management Practices for Tree Pruning* and prune in accordance with American National Standards Institute (ANSI) *A-300 Pruning Standards.*
13. Trees that are impacted from root damage (even minimally) will be sprayed in the early spring and late summer with permethrin *(Astro)* to help resist attack of oak bark beetles. The application of the chemical should be applied to the lower 6' of trunk. Treatments will be repeated for at least two years after disturbance has occurred or if drought prevails for longer periods. *Note: pesticides should be*

approved for use adjacent to water resources prior to use, and alternatives may need to be explored.

14. Any installed landscape within tree protection zones will be compatible with existing irrigation. Trenching for irrigation or electrical conduit should not go through the CRZ of protected oaks unless determined by an arborist to be a non-significant impact to the tree.
15. The arborist may determine that supplemental irrigation is necessary to aid trees that incur root loss and/or during hot and dry periods.
16. The arborist should monitor activities on the site throughout the duration of the project.
17. Upon completion of each component of the project, the arborist will develop a strategy for management of any impacted tree, which will be employed by the museum ground superintendent. This may include monitoring, irrigation, mulching, spraying, or other treatments.

To compensate for native tree removal or disturbance into 20 percent or more of a native tree's critical root zone the following tree replacement measures will be implemented:

- All sycamore and coast live oak trees that are removed and or significantly disturbed will be replaced onsite at a minimum 10:1 ratio at locations specified on the landscape plans or habitat restoration plan.
- All replacement and native landscape trees will be derived from the Mission Creek Watershed.
- Native trees planted near Museum structures within the developed portion of the Museum property will be, at minimum, 15-gallon container size.
- Native trees planted in the riparian/oak woodland open space area will be, at minimum, 1-gallon size and will be protected from gopher predation by wire mesh extending a minimum of 18-inches below the soil surface.
- All newly planted native trees will have a survival rate of 85% 5-years after planting. Should replacement tree survival fall below 85% at any time during the 5-years after planting new trees will be planted to bring the tree survival ratio up to the minimum 85% threshold.
- Monitoring of native mitigation trees will be performed twice a year, spring and fall, to document tree growth, and assess tree health.

Reserve Page 11x17 Landscape
Figure 2b. Site Plan Improvements (Western Side)

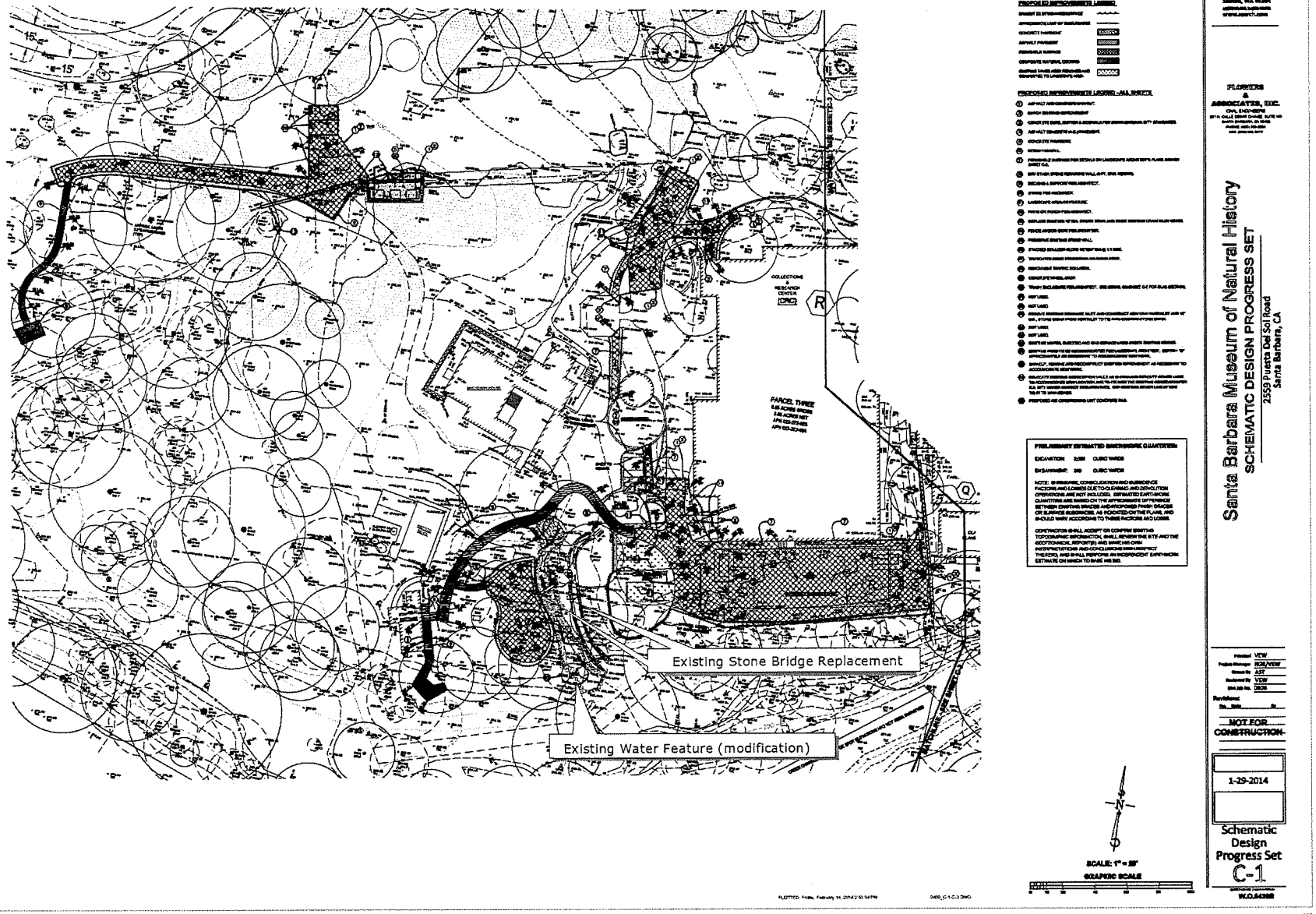

Figure 2B. Site Plan Improvements (Western Side)

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4.0 SURVEY METHODOLOGY

4.1 Biological Survey Methods

Watershed Environmental, Inc. biologist Mark de la Garza and analyst/cartographer Melodee Hickman performed field surveys of the property on October 28, 2010; April 15, 2011; April 20, 2011; April 24, 2013; and May 9, 2013. Field surveys were performed during daylight hours on foot within the 15.43-acre Santa Barbara Museum of Natural History Museum 2014 Master Plan project site. Plant community/habitat types were mapped on a 1-in.= 50-ft.-scale field map depicting topography that was overlaid on a 2008 color aerial photograph.

During the course of our surveys, field notes were used to record direct observations of botanical and wildlife resources. Consulting arborist, Bill Spiewak, provided information on the size and health, of existing trees on the property. A licensed surveyor provided the existing conditions base maps, which included the location of individual tree trunks. Photographs of the project site were taken to document existing conditions at the time of the surveys. Botanical surveys were performed following the California Native Plant Society's recommended survey guidelines (CNPS 2001), the U.S. Fish and Wildlife Service's *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants* (USFWS 2001), and the California Department of Fish and Game's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG 2009). Wildlife surveys followed standard professional practices and Santa Barbara County's *Biological Survey Guidelines* (SBCO 1995; contained in SBCO's *Environmental Thresholds and Guidelines Manual,* updated 2008).

Background biological information was obtained from the California Natural Diversity Data Base (CDFW 2013), the City of Santa Barbara's *Final Program Environmental Impact Report Wildland Fire Plan,* dated February 2004; the County of Santa Barbara's designated and mapped Environmentally Sensitive Habitat GIS database (SBCO 2007), and interviews with environmental professionals including: the SBMNH Curator of Vertebrate Zoology Mr. Paul Collins, and professional consulting biologist John Storrer who has an office in the MacVeagh house frequently bird watches on the Museum property.

5.0 ENVIRONMENTAL SETTING

5.1 Zoning and Land Use Designations

The main museum campus is located on a 9.85 acre parcel (APN: 23-271-003 and 23-271-004) and the 5.58 acre western portion of the Museum property (APN: 23-250-056, 23-250-066, 23-250-068, 23-250-039) is located within the County of Santa Barbara's jurisdiction. However, since the project includes the proposed annexation of the four parcels that are in County jurisdiction to the City, all elements of the 2014 SBMNH master plan project are assumed to require conformance with the City of Santa Barbara's policies, and ordinances. The Museum main campus is zoned by the City E-1 Single Family Residential, while the western portion of the Museum property is zoned by the County of Santa Barbara as residential 20-R-1. The museum property is within a City Fire Department designated high fire hazard "Foothill" zone (City of Santa Barbara 2010), furthermore the County of Santa Barbara Fire Department has designated all of Mission Canyon as a high fire hazard area (SBCO 2010).

5.2 Biological Resource Goals, Policies, and Ordinances

The Museum Master Plan project is subject to conformance with the City's biological resource protection goals and policies contained in the City of Santa Barbara General Plan Conservation Element (City of Santa Barbara 1979 amended 1994) and the City's 2011 Environmental Resources Element (ERE), also part of the General Plan.

The following biological resources protection goals and polices contained in the Conservation Element are relevant and applicable to this project:

> Biological Resource Goal: *Enhance and preserve the City's critical ecological resources in order to provide high quality environment necessary to sustain the City's ecosystem.*
>
> Policy 4. *Remaining Coastal Perennial Grasslands and Southern Oak Woodlands shall be preserved, where feasible.*
>
> Policy 5. *The habitats of rare and endangered species shall be preserved.*
>
> Policy 10. *Programs shall be developed to maintain a productive urban biotic community.*
>
> Policy 11. *Where biological resource policies conflict, the policy most protective of the natural environment shall prevail*

The following biological resources protection goals and polices contained in the Environmental Resources Element (ERE) are relevant and applicable to this project:

> Policy ER11. *Native and other Trees and Landscaping. Protect and maintain native and other urban trees, and landscaped spaces, and promote the use of native Mediterranean drought-tolerant species in landscaping to save energy and water, incorporate habitat, and provide shade.*
>
> Policy ER12. *Wildlife and Native Plant Habitat Protection and Enhancement. Protect, maintain, and to the extent reasonably possible, expand the City's remaining diverse native plant and wildlife habitats, including ocean, wetland, coastal, creek, foothill, and urban-adapted habitats.*
>
> Policy ER13. *Trail Management. Existing and future trails along creeks or in other natural settings shall be managed for both passive recreational use and as native species habitat and corridors.*
>
> Policy ER14. *Integrated Pest Management Program. To the extent allowable under state health and safety laws, establish ordinance provisions to apply integrated pest management requirement to development permits.*

As part of the ERE the City is considering the following implementation actions to support the biological resource policies listed above. These action items may become part of the ERE when it is finalized and/or may become new City ordinances:

- A Tree Protection Ordinance
- Oak Woodland Protection Measures
- An Urban Tree Protection and Enhancement Program
- A Map Designating Important Upland Habitats
- A Multi-Use Plan for Public Coastal Areas that Includes Habitat Restoration and Monitoring Guidelines
- A Coastal Bluff Scrub Habitat Protection and Restoration Program

- Restoration of Native Habitats on Publically Owned Lands
- Native Species Habitat Planning to protect and restore native flora and fauna and wildlife corridors
- Riparian Woodland Protection Measures

Two city tree ordinances apply to this project, the Tree Preservation Ordinance (municipal code section 15.24) and the Street Tree Planting and Maintenance Ordinance (municipal code section 15.20). Located within the El Pueblo Viejo Landmark District, the removal and/or pruning by the museum of a street tree(s) and tree(s) within the designated street setback area is regulated by the City and is subject to approval of the City's Historic Landmark Commission. These ordinances require approval and permitting prior to the removal of any City designated "specimen tree" or "historic" tree and any street tree or tree located within the setback area. The SBMNH to our knowledge, does not have any City designated specimen trees or historic trees on the 15.43-acre property.

The City of Santa Barbara 2013 Zoning Ordinance Title 28 Chapter 87.250 limits development within 25 feet of the top-of-bank of Mission Creek. This 25 ft. wide creek setback is a buffer zone that extends outward from the creek top-of-bank and is intended to: 1) prevent damage or destruction of developments by flood waters, 2) prevent detrimental flood impacts to adjacent or downstream properties, and 3) to protect the public health, safety and welfare. The City of Santa Barbara, considers this 25 ft. buffer zone to be a minimum setback and has on occasion required larger (up to 100 ft.) setbacks from the top of bank to ensure public safety, and environmental protection.

5.3 Topography and Drainage

The SBMNH sits in the Mission Canyon drainage basin located within the foothills of the Santa Ynez Mountains between 272 and 332 ft. above sea level. The property resides on an alluvial terrace which gently slopes toward Mission Creek. Notably a large sandstone boulder field is found throughout the site. These boulders are believed to have been deposited by a large debris flow that occurred several thousand years ago and originated in Rattlesnake Canyon, near Skofield Park (Keller E. 2001).

Mission Creek flows east to west through the southern portion of the Museum property. Mission Creek originates in the Santa Ynez Mountains north of the Museum, flows through the City of Santa Barbara and outlets to the Pacific Ocean at the City waterfront near Stearns Warf. The United States Geological Survey (USGS) maintains a stream gauge a few hundred feet upstream of the Museum property at Rocky Nook Park. Data from this gauge show that the segment of Mission Creek near the Museum has year round surface water flows. The monthly average creek flow is highest in January, February and March and gradually decreases each subsequent month until the end of October. The creek flow begins to gradually increase in November and usually peaks in February (USGS 2011). The City of Santa Barbara, occasionally releases water from Mission Tunnel into Mission Creek in the summer months for groundwater recharge purposes and to maintain habitat for steelhead trout (City of Santa Barbara 2011). Due to the small size of the Mission Creek Watershed (12.2 sq. miles) and the orographic effect the Santa Ynez Mountains have on precipitation, Mission Creek responds quickly to rainfall events especially when the soils are saturated (City of Santa Barbara 2011).

5.4 Soils

The soils on the 15.43-acre Santa Barbara Museum of Natural History property are primarily Cortina stony loamy sand (USDA 2011) with a small amount of Orthents soil on the south side of Mission Creek (Figure 3) near the toe of the slope that extends to St. Anthony's (now called Garden Street Academy).

Cortina stony loamy sand occurs on alluvial fans and terraces adjacent to stream channels. The soil survey of Santa Barbara County South Coastal Part (USDA 1977) classifies the drainage class as excessively drained with medium runoff; and rapid permeability. The erosion hazard from this soil is classified as slight. However, the soil profile is recognized as highly variable due to stratification of different soil layers within this soil type.

Orthent applies to areas that lack a mineral soil, because the slopes are too steep to allow the formation of soil and/or bedrock is exposed at the surface. Orthent soils occur on escarpments (cliff or steep slopes) are classified as moderately permeable with a rapid runoff rate, and high hazard of erosion.

Earth Systems completed a Geotechnical Engineering Report in 2010 for the Museum. The report's objectives were to analyze infiltration at two locations and analyze the soil at 9 locations for its suitability for building. Six of the bored wells were located adjacent to existing buildings on the main campus, and three were on the edge of the oak woodland in the western portion of the Museum property.

Earth Systems determined infiltration at two locations on the main campus to be very low. A rate of 0.00084 in/hr. and 0.0014 in/hr. were determined. The soil boring report identified two types of soil, GM (silty, gravely, gravel-sand-silt mixtures) and SM (silty sand, sand-clay-mixtures). Where present, soil class SM was near the surface with GM below. Other locations show only GM soil present (Earth Systems 2010).

Reserve Page 8.5x11 landscape
Figure 3. Soils Map

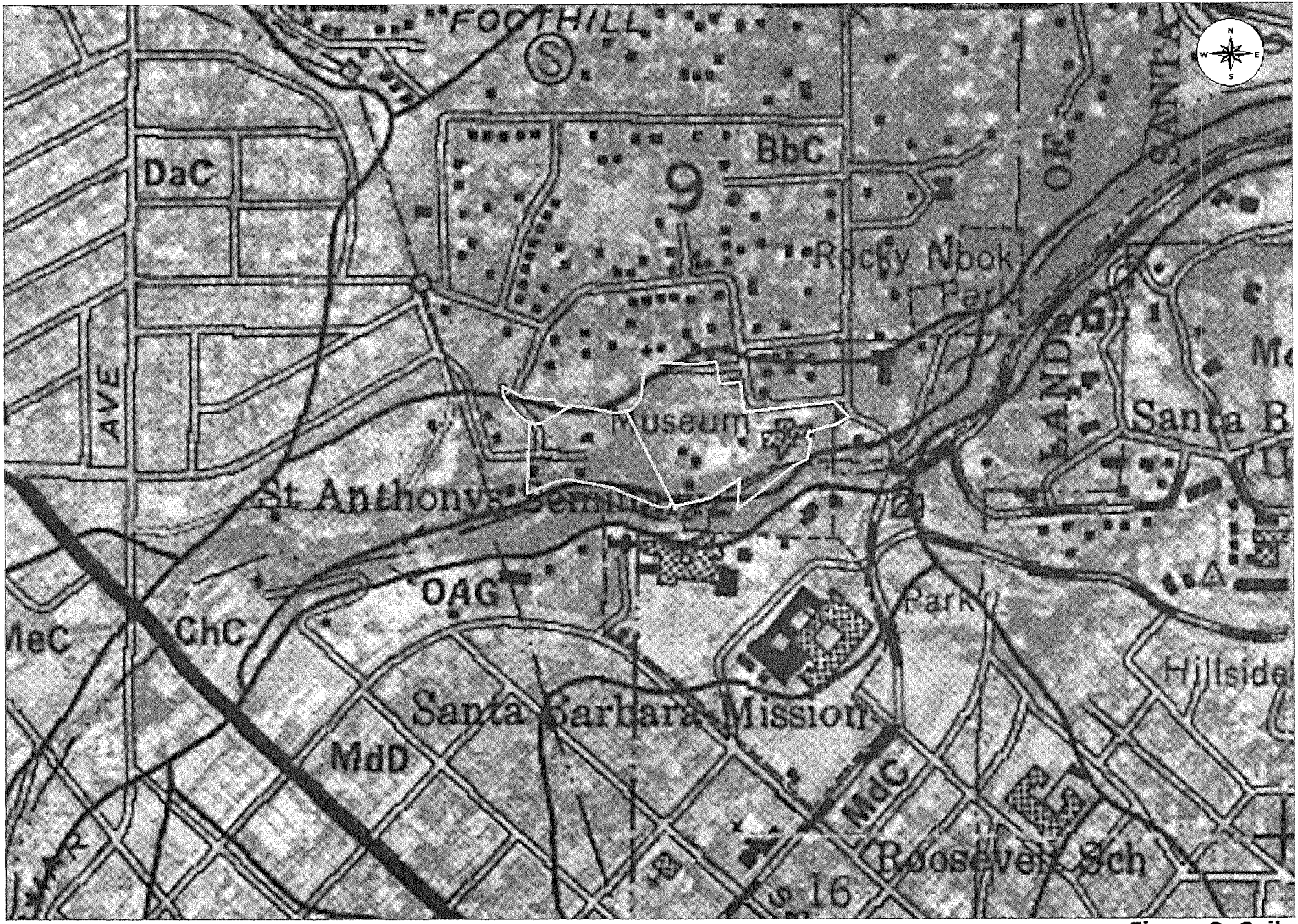

Figure 3. Soils
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Museum of Natural History Parcels

0 600 Feet

6.0 DESCRIPTION OF BIOTIC RESOURCES

6.1 Vegetation and Land Cover Types

Vegetation and land cover mapping was performed concurrently with the performance of field surveys. Mapping consisted of identifying and mapping the aerial extent of the vegetation canopy on a 1-in.=50-ft. color aerial photograph taken in 2008. The vegetation cover area calculations used here represent our assessment of the aerial extent of the vegetation canopy projected down onto the ground surface. The minimum mapping unit size used is 100 sq. ft.

Early photographs from 1926 and 1956 clearly show that the area surrounding the original Museum was oak woodland with multiple landscaped residential areas (SBMNH 2010). Review of historic aerial photographs reveals that the oak tree density and tree canopy cover on the Museum property has increased over time. This is attributed to retained oak tree growth, new tree plantings by the Museum, and natural oak regeneration. The existing canopy of oaks, sycamores, and ornamental trees currently extends out over current structures, parking lots, patios, and landscaped areas. In this report we have used the term "developed understory" to denote areas where the tree canopy cover overhangs existing developed areas. "Land cover" describes areas that contain less than 20 percent vegetation and includes paved surfaces, dirt/gravel roads, and structures. The mapped vegetation and land cover types were then converted into Geographic Information System (GIS) shapefiles so that area calculations and figures could be generated.

Vegetation type nomenclature follows the descriptions used in 1986 by Holland in *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Figure 4 depicts the locations of the existing plant community and land cover types on the Museum property. Table 2 provides summary area calculations of vegetation and land cover types. A description of the plant community and land cover types depicted in Figure 4 is provided in section 6.2.1 and 6.2.2 of this report.

Table 2. Existing Vegetation and Land Cover Types

Western Portion of Museum Property (APN: 23-250-056, 23-250-066, 23-250-068, 23-250-039)		
Vegetation Type (canopy cover)	**Area (sq. ft.)**	**Area (acres)**
Arroyo Willow/CLO/SYC Riparian Woodland	4,565	0.10
CLO Woodland	128,083	2.94
CLO/SYC Riparian Woodland	97,399	2.24
Eucalyptus	2,382	0.05
Non-Native Annual Grassland	8,459	0.19
Land Cover Type		
Pavement Road/Driveway/Parking Lot	726	0.02
Structure	1,449	0.03
Subtotal Western Portion of Museum Property	**215,622**	**4.95**

Main Campus (APN: 23-271-003, 23-271-004)		
Vegetation Type (canopy cover)	**Area (sq. ft.)**	**Area (acres)**
CLO Woodland	24,073	0.55
CLO/SYC Riparian Woodland	63,583	1.46
CLO/SYC Riparian-Developed Understory	37,343	0.86
Eucalyptus	3,563	0.08
Mixed CLO/Ornamental	32,100	0.74
Oak-Ornamental-Developed Understory	104,109	2.39
Ornamental	31,368	0.72
Land Cover Type		
Bare Ground	5,394	0.12
Pavement Road/Driveway/Parking Lot	51,494	1.18
Structure	65,667	1.51
Walkway	10,372	0.24
Subtotal Main Campus	**429,066**	**9.85**
GRAND TOTAL	**672,131**	**15.43**

6.2 Botanical Resources

The 15.43-acre project site contains 627 trees excluding Vegetation Survey Markers (large shrubs, and small < 4 in. DBH trees). A large number (approximately 90 percent) of the trees on the property are native. Native trees include: coast live oak, sycamore, California bay, bigleaf maple, white alder, black cottonwood, and arroyo willow. Certified master arborist Bill Spiewak inventoried the trees in 2011 and resurveyed the trees in 2013. Since February 3, 2014, 5 coast oak trees (Id. numbers: 105-small, 172-large, Id. 255-extra-large, 451-large, and 575-medium) have died and were removed. As part of the earlier master planning efforts, Spiewak prepared standalone tree reports in 2011 and 2013 describing the size and health of trees on the SBMNH property, tree protection measures to reduce and minimize tree impacts, and with assistance from Watershed Environmental, assessed potential project impacts to trees (Spiewak 2013). A summary of the trees located within the main campus and western portion of the Museum property with a diameter at breast height of 4 inches or greater inventoried by Spiewak is provided in Table 3 below. For specific information about an individual tree see Spiewak's June 3, 2013 SBMNH Tree Inventory (Attachment 1).

Reserve Page 11x17 Landscape

Figure 4. Existing Plant Community and Land Cover Types

Figure 4. Vegetation Communities Land Use Types

Biological Assessment
Santa Barbara Museum
of Natural History 2014 Master Plan Project
2559 Puesta Del Sol, Santa Barbara, CA

Watershed Environmental, Inc. 3/6/14

Table 3. Summary of Trees on the SBMNH Project Site

Scientific Name	Common Name	Quantity
Acer macrophyllum	bigleaf maple	2
Alnus rhombifolia	white alder	3
Calocedrus decurrens	incense cedar	1
Cedrus deodara	deodar cedar	1
Eucalyptus camaldulenisis	red gum	6
Eucalyptus ficifolia	red-flowering gum	4
Eucalyptus sideroxylon	red ironbark	2
Heteromeles arbutifolia	toyon	2
Juglans nigra	black walnut	6
Juniperus sp.	juniper	1
Ligustrum japonica	Japanese privet	1
Magnolia sp.	magnolia	3
Olea europeae	olive	8
Pinus canariensis	Canary Island pine	1
Pinus radiata	Monterey pine	7
Pinus thunbergii	Japanese Black Pine	1
Pittosporum undulatum	pittospourm	12
Platanus racemosa	sycamore	123
Populus trichocarpa	black cottonwood	3
Pseudotsuga menziesii	douglas-fir	1
Quercus agrifolia	coast live oak	342
Salix lasiolepis	arroyo willow	2
Schinus molle	Peruvian pepper	2
Sequoia semperviren	coast redwood	15
Umbellularia californica	California bay	3
VSM (Vegetation Survey Marker)	large shrubs, and small (< 4 in. DBH) trees	131
Washingtonia filifera	desert fan palm	1
Washingtonia robusta	Mexican Fan Palm	4
Total		**758**

The understory vegetation beneath the tree canopy is almost entirely non-native except in areas where County Flood Control performed habitat restoration along the creek banks, and on the south side of Mission Creek where the Museum has installed a small ethnobotany exhibit of plants used by the Chumash Indians. The understory vegetation in the developed areas of the main campus include a variety of non-native ornamental species commonly used in drought tolerant landscaping. The understory vegetation in the undeveloped oak and riparian woodland in the western portion of the Museum property are dominated by non-native vines including periwinkle, cape ivy, English ivy, cape honeysuckle and a variety of non-native annual and perennial grasses and herbs. The non-native vines and non-native grasses and herbs are ubiquitous in riparian and oak woodland habitat within the city limits and the south coast of Santa Barbara County. There are some native species in these undeveloped woodlands, the most common being: poison oak, bracken fern, woodmint, California blackberry, and alkali rye. Table 4 contains a list of plant species present on the museum property. This plant list may not include all

of the ornamental landscape species that exist on the 15.43 acre project site, a few plant species may have been overlooked.

Table 4. List of Plant Species Observed

Scientific Name	Common Name	Native (N) Introduced (I)
Acacia melanoxylon	black acacia	I
Acer macrophyllum	bigleaf maple	N
Achillea millefolium	yarrow	N
Aesculus californica	California buckeye	I
Agapanthus africanus	African lily	I
Ageratina adenophora	sticky eupatorium	I
Alnus rhombifolia	white alder	N
Aloe sp.	aloe	I
Ambrosia psilostachya	western ragweed	N
Anagallis arvensis	scarlet pimpernel	I
Anemopsis californica	yerba mansa	N
Apocynum cannabinum	dogbane	N
Artemisa douglasiana	mugwort	N
Atriplex semibaccata	Australian saltbush	I
Avena fatua	wild oat	I
Brassica nigra	black mustard	I
Brassica rapa	field mustard	I
Bromus carinatus	California brome	N
Bromus diandrus	ripgut brome	I
Bromus hordeaceus	soft chess	I
Calocedrus decurrens	incense cedar	I
Campsis radicans	trumpet vine	I
Canna indica	canna lily (ornamental)	I
Carduus pycnocephalus	Italian thistle	I
Carex barbarae	Santa Barbara sedge	N
Carissa macrocarpa	natal plum	
Carpenteria californica	California anemone	N
Ceanothus sp.	yankee point ceanothus (cultivar)	I
Ceanothus spinosus	greenbark ceanothus	N
Cedrus deodara	deodar cedar	I
Cercis occidentalis	western redbud (cultivar)	I
Cercocarpus betuloides	mountain mahogany	N
Chamomilla suaveolens	pineapple weed	I
Chenopodium californicum	California goosefoot	N
Chlorogalum pomeridianum	soap plant	N
Cistus sp.	rock rose (cultivar)	I
Citrus limonia	lemon	I
Claytonia perfoliata ssp. *mexicana*	miner's lettuce	I
Clematis ligusticifolia	creek clematis	N
Conium maculatum	poison hemlock	I
Conyza Canadensis	horseweed	N

Scientific Name	Common Name	Native (N) Introduced (I)
Cornus stolonifera	Western dogwood	N
Crassula ovata	jade plant	I
Cupressus sp.	cypress (cultivar)	I
Cyathea cooperi	Australian tree fern	I
Cynodon dactylon	Bermuda grass	I
Delairea odorata	cape ivy	I
Dimorphotheca fruticosa	trailing African daisy	I
Diospyros sp.	persimmon	I
Dryopteris arguta	California wood fern	N
Echium candicans	pride of madeira	I
Epilobum canum	California fuchsia	N
Eriogonum fasciculatum	California buckwheat	N
Eriogonum sp.	buckwheat (cultivar)	I
Erodium borys	broad-leaved filaree	I
Erodium cicutarium	redstem filaree	I
Eschscholzia californica	California poppy	N
Eucalyptus camaldulenisis	red gum	I
Eucalyptus ficifolia	red-flowering gum	I
Eucalyptus sideroxylon	red ironbark	I
Euphorbia peplus	petty spurge	I
Ferocactus cylindraceus	barrel cactus	I
Foeniculum vulgare	fennel	I
Fremontodendron californicum	California fremontia (cultivar)	I
Genista monspessulana	French broom	I
Geranium dissectum	cut-leaved geranium	I
Geranium molle	dove's-foot geranium	I
Geranium sp.	geranium (cultivar)	I
Grevilla robusta	southern silky oak	I
Hedera helix	English ivy	I
Hemerocallis hybrida	daylily	I
Heteromeles arbutifolia	toyon	N
Heterotheca grandiflora	telegraph weed	I
Heuchera sp.	corral bells (cultivar)	I
Homalocladium platycladum	tapeworm plant	I
Hordeum murinum	foxtail	I
Hypochaeris glabra	smooth cat's ear	I
Iris sp.	iris (cultivar)	I
Jacaranda mimosifolia	jacaranda	I
Jasminum sp.	jasmine	I
Juglans nigra	black walnut	I
Juncus acutus	spiny rush	N
Juncus balticus	Baltic rush	N
juncus textilis	basket rush	N
Juniperus sp.	juniper	I
Lantana camara	lantana	I
Leymus condensatus	giant wild rye	N

Scientific Name	Common Name	Native (N) Introduced (I)
Leymus triticoides	alkali rye	N
Ligustrum japonica	Japanese privet	I
Lolium multiflorum	Italian rye	I
Lomatium californicum	California lomatium	N
Lonicera sp.	Honeysuckle	I
Macadamia ternifolia	macadamia	I
Magnolia sp.	magnolia	I
Malva parviflora	cheeseweed	I
Manzanita sp.	manzanita (cultivar)	I
Marah macrocarpus var. *macrocarpus*	wild cucumber	N
Medicago polymorpha	bur clover	I
Melilotus indicus	yellow sweet clover	I
Muhlenbergia rigens	deer grass	N
Musa sp.	banana	I
Nephrolepis exaltata	Boston fern	I
Nerium oleander	oleander	I
Olea europeae	olive	I
Opuntia sp.	prickly pear cactus	I
Oxalis pes-caprae	sour-grass	I
Pennisetum clandestinum	kikuyu grass	I
Persea americana	avocado	I
Pholistoma auritum	fiesta flower	I
Pinus canariensis	Canary Island pine	I
Pinus muricata	bishop pine	I
Pinus radiata	Monterey pine	I
Pinus thunbergii	Japanese Black Pine	I
Piptatherum (Oryzopsis) miliaceum	smilo grass	I
Pittosporum undulatum	pittospourm	I
Plantago lanceolata	English plantain	I
Plantago major	common plantain	I
Platanus racemosa	western sycamore	N
Populus trichocarpa	black cottonwood	N
Prunus cerasifera	plum	I
Prunus ilicifolia	hollyleaf cherry	N
Prunus lyonii	Catalina cherry	N
Pseudotsuga menziesii	douglas-fir	I
Pteridium aquilinum	western bracken	N
Pteridium aquilinum var. *pubescens*	western bracken	N
Pyracantha sp.	firethorn	I
Quercus agrifolia	coast live oak	N
Raphiolepis sp.	hawthorne bush	I
Rhamnus californica	coffeeberry	N
Rhus integrifolia	lemonade berry	N
Rhus trilobata	skunk bush	N
Ribes amarum var. *hoffmannii*	bitter gooseberry	N
Ribes californicum var. *californicum*	canyon gooseberry	N
Romneya coulteri	matilija poppy	N
Rosa californica	wild rose	N

Scientific Name	Common Name	Native (N) Introduced (I)
Rosa sp.	rose (cultivar)	I
Rubus ursinus	California blackberry	N
Rumex crispus	curly dock	I
Salix lasiolepis	arroyo willow	N
Salvia apiana	white sage	I
Salvia leucantha	Mexican sage	I
Salvia leucophyla	purple sage	N
Salvia spathacea	hummingbird sage	N
Sambucus mexicanus	Mexican elderberry	N
Satureja douglasii	yerba Buena	N
Schinus molle	Peruvian pepper	I
Sequoia semperviren	coast redwood	I
Silene gallica	windmill pink	I
Sisyrinchium bellum	blue-eyed grass	N
Solanum douglasii	Douglas' nightshade	N
Solidago californica	California goldenrod	N
Stachys bullata	common woodmint	N
Stellaria media	chickweed	I
Strelitzia reginae	bird of paradise	I
Symphoricarpos mollis	creeping snowberry	N
Tecoma capensis	cape honeysuckle	I
Toxicodendron diversilobum	poison oak	N
Trichostema lanatum	woolly blue curls	N
Tropaeolum jajus	garden nasturtium	I
Tulbaghia violacea	society garlic	I
Umbellularia californica	California bay	N
Venegasia carpesioides	canyon sunflower	N
Verbena sp.	verbena (cultivar)	I
Vinca major	periwinkle	I
Vitis californica	California grape	N
Vulpia myuros var. *myuros*	rattail fescue	I
Washingtonia filifera	desert fan palm	I
Washingtonia robusta	Mexican Fan Palm	I
Woodwardia fimbriata	giant chain fern	N
Yucca sp.	yucca	I
Yucca whipplei	chaparral yucca	N
Zantedeschia aethiopica	calla lily	I

6.2.1 Description of Vegetation Types

Arroyo Willow/Coast Live Oak/Sycamore Riparian Woodland: The dominant trees within this vegetation type are arroyo willow, coast live oak, and western sycamore which create a multi-layered, closed (greater than 50 percent relative cover) tree canopy on the banks of Mission Creek near the creek bed. The understory vegetation beneath the tree canopy is dominated by two species of non-native honeysuckle, poison oak, blackberry, and periwinkle.

Coast Live Oak Woodland: This vegetation type is defined by the presence of coast live oak trees forming a nearly closed canopy. The understory vegetation beneath the oak tree canopy is primarily periwinkle, English ivy, woodmint, sour-grass, ripgut brome, and foxtail. There are also non-native tree saplings (olive, pittosporum, and acacia) scattered within in this woodland, and some ornamental shrubs that were either transported as seeds to the area by wildlife (birds) or were planted as landscaping.

Coast Live Oak/Sycamore Riparian Woodland: This vegetation type occurs along the banks of Mission Creek and extends out several hundred feet from the creek. The dominant trees are coast live oak and sycamore with a few scattered California bay trees. The tree canopy structure is multi-layered and closed (greater than 50 percent relative cover). The understory vegetation is predominantly a mixture of non-native vegetation with a few scattered native species. Non-native understory species include: garden nasturtium, periwinkle, cape ivy, cape honeysuckle, smilo grass, and poison hemlock. Native species include: bracken fern, alkali rye, canyon gooseberry, California blackberry, greenbark ceanothus, mountain mahogany, and lemonade berry. This community also contains a few non-native tree saplings (olive, pittosporum, and acacia) scattered about the woodland, and some ornamental shrubs.

Coast Live Oak/Sycamore Riparian Woodland in an existing developed area: This vegetation type occurs on the banks of Mission Creek in areas that have been developed, but where the tree canopy overhangs existing structures, walkways, patios, and landscaped areas. The dominant trees are coast live oak and sycamore, which create a closed (greater than 50 percent relative cover) canopy. The understory vegetation when present consists of native and non-native plants that were installed by the Museum as part of their landscaping, and is actively maintained by the museum. Included within this vegetation type is the small ethnobotanical exhibit of native plants used in the Museum educational programs.

Eucalyptus: This vegetation type consists of two small groves of eucalyptus trees that were planted as landscaping many years ago. One grove exists northeast of the visitor parking lot and the other in the oak woodland west of the main campus. The understory vegetation consists of the same species found onsite in the coast live oak woodland and coast live oak/sycamore riparian woodland habitats.

Mixed Coast Live Oak/Ornamental: This vegetation type exists north of the existing asphalt paved visitor parking lot and consists of a mixture of native coast live oak trees and non-native ornamental trees including: bishop pine, Monterey pine, olive, Peruvian pepper, and eucalyptus. The understory vegetation is a mixture of periwinkle, bare ground, and non-native grass species.

Non-native Annual Grassland: This vegetation type exists in a few small isolated areas in the western portion of the Museum property. The dominant grass species in this community are wild oat, soft chess, ripgut brome, foxtail, and rattail fescue. Other non-grass dominant plants in this community include redstem filaree, scarlet pimpernel, bur clover, and dove's-foot geranium.

Oak-Ornamental in an existing developed area: This vegetation type occurs on the main campus, and includes portions of the Museum parking lot, buildings, walkways, patios, and landscaped areas that are beneath the tree canopy. Oak trees in this vegetation type were retained during construction due to their large size and aesthetic value. Consequently, they have large canopies that overhang a substantial portion of the

Museum campus. Some areas, such as the area adjacent to the MacVeagh house were originally farmed and subsequently were developed and landscaped. Understory vegetation is ornamental landscaping that was planted and is actively managed by the Museum.

Ornamental: This vegetation type lacks any mature oak trees and consists of landscaped areas containing a wide variety ornamental shrubs, and herbs. There are no dominant species within this vegetation type. It is a mixture of over 40 species of drought tolerant ornamentals and native cultivars.

6.2.2 Description of Land Cover Types

Bare Ground: This land cover type includes areas that have been recently cleared of vegetation and/or were recently disturbed.

Pavement Road/Driveway/Parking Lot: This land cover type includes asphalt paved surfaces on which vehicles can drive and park on that are not shaded beneath a tree canopy.

Structure: This land cover type includes buildings that are not shaded beneath a tree canopy.

Walkway: This land cover type includes all walking paths both paved and un-paved that are not shaded beneath a tree canopy.

6.3 Wildlife

A few common wildlife species were observed during performance of our October 28, 2010; April 15, 2011; April 20, 2011; April 24, 2013; and May 9, 2013 field surveys. However, many other mammal, amphibian, and reptile species are known from museum records to occur or have the potential to occur on the Museum property, given the habitat that exists, the adjacent land use, and geographic location of the Museum (Table 5).

The Museum property is in an urban area surrounded by residential and institutional development, and the public Rocky Nook Park. Mission Creek passes through the southern portion of the Museum property and is known to serve as a movement corridor for aquatic and terrestrial wildlife species. Larger mammals such a mountain lion, raccoon, coyote, and deer are able to move safely up and down the creek corridor and adjacent riparian habitat without having to cross any roads. Mission Creek also provides a movement corridor for aquatic species such as southern steelhead, and western pond turtle. Wildlife movement through the undeveloped western portion of the Museum property is relatively unrestricted; wildlife can move to and from the creek without encountering any barriers or obstructions such as a wall, fence, building, or roadway. This is not the case on developed main campus portion of the Museum property which has as a number of buildings, and walls that restrict terrestrial wildlife movement.

Table 5. Wildlife Species Observed, Expected, or Potentially Occurring

Common Name	Scientific Name	Seasonal Status	Site Status
Fish			
Southern steelhead	*Oncorhyncus mykiss iridius*	RB	K
Amphibians and Reptiles			
arboreal salamander	*Aneides lugubris*	RB	K
black-bellied slender salamander	*Batrachoseps nigriventris*	RB	K
common king snake	*Lampropeltis getulus*	RB	K
ensatina	Ensatina eschscholtzii	RB	K
gopher snake	*Pituophis catenifer*	RB	K
mountain kingsnake	Lampropeltis zonata	RB	K
Pacific tree frog	*Pseudacris (=Hyla) regilla*	RB	O & K
ringneck snake	*Diadophis punctatus*	RB	K
silvery legless lizard	*Anniella pulchra*	RB	K
southern alligator lizard	*Elgaria multicarinata*	RB	K
western pond turtle	*Emys marmorata*	V	K
western fence lizard	*Sceloporus occidentalis*	RB	O & K
western skink	*Eumeces skiltonianus*	RB	K
Birds			
acorn woodpecker	*Melanerpes formicivorus*	RB & N	O & K
Allen's hummingbird	*Selasphorus sasin*	RB & N	K
American crow	*Corvus brachyrhynchos*	RB & N	O & K
American goldfinch	*Carduelis tristis*	WV	K
American kestrel	*Falco sparverius*	RB	O & K
American robin	*Turdus migratorius*	WV	O & K
Anna's hummingbird	*Calypte anna*	RB & N	O & K
ash-throated flycatcher	*Myiarchus cinerascens*	SB	K
band-tailed pigeon	*Columda fasciata*	RB	K
barn owl	*Tyto alba*	RB	K
barn swallow	*Hirundo rustica*	SB	E
Bewick's wren	*Thryomanes bewickii*	RB & N	O & K
black phoebe	*Sayornis nigricans*	RB & N	O & K
black-headed grosbeak	*Pheucticus melanocephalus*	SB	K
brown towhee	*Pipilo fuscus*	RB & N	O & K
brown-headed cowbird	*Molothrus ater*	SB	K
bushtit	*Psaltriparus minimus*	RB & N	O & K
California quail	*Callipepla californica*	RB & N	O & K
California towhee	*Pipilo crissalis*	RB & N	O & K
canyon wren	*Catherpes mexicanus*	RB	K
cedar waxwing	*Bombycilla cedrorum*	WV	K
cliff swallow	*Hirundo pyrrhonota*	SB	K
common yellowthroat	*Geothlypis trichas*	RB	K
Cooper's hawk	*Accipiter cooperii*	RB & N	K
dark-eyed junco	*Junco hyemalis*	RB & N	O & K
downy woodpecker	*Picoides pubescens*	RB & N	K
European starling	*Sturnus vulgaris*	RB & N	O & K

Common Name	Scientific Name	Seasonal Status	Site Status
golden-crowned sparrow	*Zonotrichia atricapilla*	WV	O & K
great blue heron	*Ardea herodias*	RB	K
great horned owl	*Bubo virginianus*	RB & N	K
house finch	*Carpodacus mexicanus*	RB & N	O & K
house sparrow	*Passer domesticus*	I	O & K
house wren	*Troglodytes aedon*	RB & N	K
killdeer	*Charadrius vociferous*	RB	P
Lawrence's goldfinch	*Carduelis lawrencei*	M	K
lesser goldfinch	*Carduelis psaltria*	RB & N	K
mourning dove	*Zenaida macroura*	RB & N	O & K
northern flicker	*Colaptes auratus*	RB & N	O & K
northern mockingbird	*Mimus polyglottos*	RB & N	O & K
northern oriole	*Icterus bullockii*	M	K
Nuttall's woodpecker	*Picoides nuttallii*	RB & N	K
oak titmouse	*Bacolophus ridgwayi*	RB & N	O & K
Pacific-slope flycatcher	*Empidonax difficilis*	RB & N	K
purple finch	*Carpodacus purpurius*	RB & N	O & K
red-shouldered hawk	*Buteo lineatus*	RB & N	K
red-tailed hawk	*Buteo jamaicensis*	RB	K
rock pigeon	*Columba livia*	RB	O & K
ruby-crowned kinglet	*Regulus calendula*	WV	K
Say's phoebe	*Sayornis saya*	RB	E
sharp-shinned hawk	*Accipiter striatus*	WV	K
song sparrow	*Melospiza melodia*	RB & N	O & K
spotted towhee	*Pipilo maculatus*	RB & N	K
turkey vulture	*Cathartes aura*	V	K
western screech-owl	*Otus kennicottii*	RB & N	K
western scrub-jay	*Aphelocoma californica*	RB & N	O & K
white-breasted nuthatch	*Sitta carolinensis*	RB & N	P
white-crowned sparrow	*Zonotrichia leucophrys*	WV	K
white-throated swift	*Aeronautes saxatalis*	V	K
yellow warbler	*Dendroica petechia*	RB & N	K
yellow-rumped warbler	*Dendroica coronata*	WV	O & K
Mammals			
big brown bat	*Eptesicus fuscus*	SB	K
black rat	*Rattus rattus*	I	K
bobcat	*Lynx rufus*	RB	K
Botta's pocket gopher	*Thomomys bottae*	RB	O & K
broad-footed mole	*Scapanus latimanus*	RB	K
brush rabbit	*Sylvilagus bachmani*	RB	P
California ground squirrel	*Spermophilus beecheyi*	RB	P
California mouse	*Peromyscus californicus*	RB	P
California myotis	*Myotis californicus*	RB	E
coyote	*Canis latrans*	V	K
deer mouse	*Peromyscus maniculatus*	RB	P
eastern fox squirrel	*Sciurus niger*	RB	K
house cat	*Felis catus*	I	K
gray fox	*Urocyon cinereoargenteus*	RB	P

Common Name	Scientific Name	Seasonal Status	Site Status
Merriam's chipmunk	*Tamias merriami*	RB	O & K
mountain lion	*Felis concolor*	V	K
mule deer	*Odocoileus hemionus*	V	K
ornate shrew	*Sorex ornatus*	RB	P
pallid bat	*Antrozous pallidus*	SB	P
raccoon	*Procyon lotor*	RB	K
red fox	*Vulpes vulpes*	RB	P
ringtail	*Bassariscus astutus*	RB	K
striped skunk	*Mephitis mephitis*	RB	K
Virginia opossum	*Didelphis virginiana*	I	K
western gray squirrel	*Sciurus griseus*	RB	O & K

Codes
Seasonal Status: RB = Resident Breeder; SB = Summer Breeder; M = Migrant; V = Visitor; WV = Winter Visitor; I = Introduced Species; N = Nests historically on SBMNH property
Site Status: E = Expected to occur at the project site; O = Observed on or in the immediate vicinity of the project site; P = Potential to occur; K = Known to occur from SBMNH records

Generally, the wildlife found on site are highly mobile species such as birds, and species adapted to human presence and an urban residential environment. There have been a few notable exceptions, such as a reported late-night mountain lion sighting by a museum employee. Table 4 is not intended to be a complete inventory of all species present at all times on the Museum property. Other wildlife species may periodically use and/or visit the site. It should also be recognized that wildlife movement and habitat use is dynamic and subject to change in response to natural and manmade conditions.

6.4 Sensitive Species

Sensitive species considered in this assessment are those protected by the federal Endangered Species Act and/or the California Endangered Species Act and those species meeting the California Environmental Quality Act definition of "rare." This includes: all endangered or threatened species, candidates for listing, Species of Special Concern listed by the federal and state government, plants listed by the California Native Plant Society (CNPS) as List 1 or List 2, and plants listed by the Santa Barbara Botanic Garden (2007) as locally sensitive.

During the biological field surveys performed in 2010, 2011, and 2013 no sensitive plants were found. The sensitive wildlife species known to occur on the SBMNH property are southern steelhead (*Oncorhyncus mykiss iridius*) which exist in Mission Creek, Coopers hawk (*Accipiter cooperii*) which have been seen foraging in the woodlands on the property and have historically nested in the mixed coast live oak/ornamental woodland north of the existing parking lot, silvery legless lizard (*Anniella pulchra*) which was found in a pile of woodchips/compost on the main campus near the children's play area known as the backyard, and western pond turtle (*Emys marmorata*) which have been occasionally seen in the segment of Mission Creek that flows through the Museum property.

Surveys for nesting birds focused on locating nests and interviewing Museum staff and local biologist John Storrer to ascertain which birds have historically nested on the Museum property. Thirty-two species of birds have historically been known to nest on the property (refer to Table 4). Active nests of over 200 bird species are

protected by the Federal Migratory Bird Treaty Act (USFWS 2011). Additionally, Section 3503.5 of the Fish and Game Code states that it is unlawful to take, possess, or destroy any raptors, including their nests or eggs. Violations include destruction of active raptor nests as a result of tree removal and disturbance to nesting pairs by nearby human activity that causes nest abandonment and reproductive failure.

In addition to the Museum's sensitive species observation records, the CDFG's California Natural Diversity Database (CDFG December 2013) has historical records for the following species within two miles of the SBMNH: Cooper's hawk, two-striped garter snake, Sonoran maiden fern, Coulter's saltbush, late-flowered mariposa lily, Mesa horkelia, Santa Barbara honeysuckle, and Nuttall's scrub oak and white-veined monardella. Table 6 contains a list of sensitive species potentially occurring in the project area and an evaluation of their occurrence potential. A map depicting the location of 2013 California Natural Diversity Database sensitive species occurrence records and Museum records is provided in Figure 5.

Table 6. List of Sensitive Species Potentially Occurring in the Project Area and Evaluation of Occurrence Potential

Common Name	Scientific Name	Special Status	Occurrence Potential	Notes
Fish				
southern steelhead ESU	*Oncorhyncus mykiss iridius*	FE	Known to occur	Species is known to periodically exist in the plunge pool below an existing concrete weir structure and have been known to take refuge in undermined sections of the existing sandstone retaining wall on the northern bank of Mission Creek. SBMNH property is also a CDFW release location
Birds				
Cooper's hawk	*Accipiter cooperii*	CSC	Known to occur	Species is occasionally seen foraging in woodland habitat present on the Museum property. Species is also known to have historically nested in the mixed oak/ornamental woodland on the Museum property and may be nesting on properties adjacent and/or near the museum.
yellow warbler	*Dendroica petechia brewsteri*	CSC	Known to occur	Species is known to occur on the Museum property and may potentially nest in riparian habitat on the museum property.
Insects				
vernal pool fairy shrimp	*Branchinecta lynchi*	FT	No potential for occurrence	Species requires ponded surface water for 2-6 weeks for annual life cycle. No ponds or other topographic features exist within the SBMNH property that could support this species.
monarch butterfly	*Danaus plexippus*	CSC	Known to occur but foraging only	Winter aggregation sites are typically in dense eucalyptus groves for protection from wind/rain. No suitable eucalyptus groves are present onsite.

Common Name	Scientific Name	Special Status	Occurrence Potential	Notes
Reptiles and Amphibians				
Coast Range newt	*Taricha torosa*	CSC	Low Potential for occurrence	This species has been documented to occur in Mission Creek upstream of the SBMNH but is not known to occur below the Santa Barbara Botanic Gardens.
silvery legless lizard	*Anniella pulchra pulchra*	CSC	Known to occur	Preferred habitat is sandy soil, and/or areas with thick accumulations of leaf litter. Species was found in a mulch pile near the butterfly pavilion and is presumed present in woodland habitat on the Museum property.
two-striped garter snake	*Thamnophis hammondii*	CSC	Low potential for occurrence.	This species has been documented to occur in Mission Creek upstream of the SBMNH but is not known to occur below the Santa Barbara Botanic Gardens.
western pond turtle	*Emys marmorata*	CSC	Known to occur	This species has occasionally been seen in Mission Creek on the Museum property. This species is commonly collected when found and is probably not breeding onsite due to high human presence.

Common Name	Scientific Name	Special Status	Occurrence Potential	Notes
Plants				
Coulter's saltbush	*Atriplex coulteri*	List 1B	Low potential for occurrence	This perennial plant was not observed during performance of field surveys. This plant is typically found on coastal bluffs near the ocean, rocky slopes, and unshaded streambeds.
Davidson's saltscale	*Atriplex serenana var. davidsonii*	List 1B	Low potential for occurrence	This annual plant was not observed during performance of field surveys. This plant is typically found in close proximity to the coast and is not expected to occur this far inland.
late-flowered mariposa lily	*Calochortus weedii* var. *vestus*	SBBG	No potential for occurrence	This perennial bulb was not observed during performance of field surveys. This plant occurs on sandstone-derived soils in chaparral and coastal sage scrub habitat.
Mesa horkelia	*Horkelia cuneata* ssp. *puberula*	List 1B	Moderate potential for occurrence	This perennial plant was not observed during performance of field surveys. This species is normally found in oak woodland habitat such as that found on the Museum property.
Nuttall's scrub oak	Quercus dumosa	List 1B	Low potential of occurrence	This perennial shrub was not observed during performance of field surveys. This species is normally found in chaparral habitats.
Santa Barbara honeysuckle	*Lonicera subspicata var. subspicata*	List 1B	Low potential of occurrence	This perennial shrub was not observed during performance of field surveys. This plant is usually found in clay soils with chaparral and coastal sage scrub habitat.

Common Name	Scientific Name	Special Status	Occurrence Potential	Notes
Santa Barbara morning glory	*Calystegia sepium var. binghamiae*	List 1A	No potential for occurrence	This perennial plant was not observed during performance of field surveys. This plant is typically found in freshwater marsh habitat. No such habitat exists on the Museum property. Plant is presumed extinct; and was last observed in Santa Barbara in 1921.
Sonoran maiden fern	Thelypteris puberula var.sonorensis	List 2	Low potential for occurrence	This perennial evergreen fern was not observed during performance of field surveys. This plant is usually found in deep well shaded canyons adjacent to streams and seeps.
umbrella larkspur	*Delphinium umbraculorum*	List 1B	Moderate potential for occurrence	This perennial plant was not observed during performance of field surveys. This species is usually found in moist oak woodland and oak forest habitat.
white veined monardella	*Monardella hypoleuca* ssp. *hypoleuca*	List 1B	Moderate potential for occurrence	This perennial plant was not observed during performance of field surveys. This species is only found in chaparral and woodland habitats in the Santa Monica, Santa Ynez, and Sierra Madre Mountains.

Status Codes
FT = Federally listed as threatened
FE = Federally listed as endangered
CSC = CDFG California Special-Concern Species
SE =State-listed as endangered
ST = State-listed as threatened
CFP = CDFW fully protected species
List 1A = CNPS plants presumed extinct in California
List 1B = CNPS plants rare, threatened, or endangered in California and elsewhere
List 2 = CNPS plants rare, threatened, or endangered in California, but more common elsewhere

Reserve Page

Figure 5. Known Sensitive Biological Resources in Project Vicinity

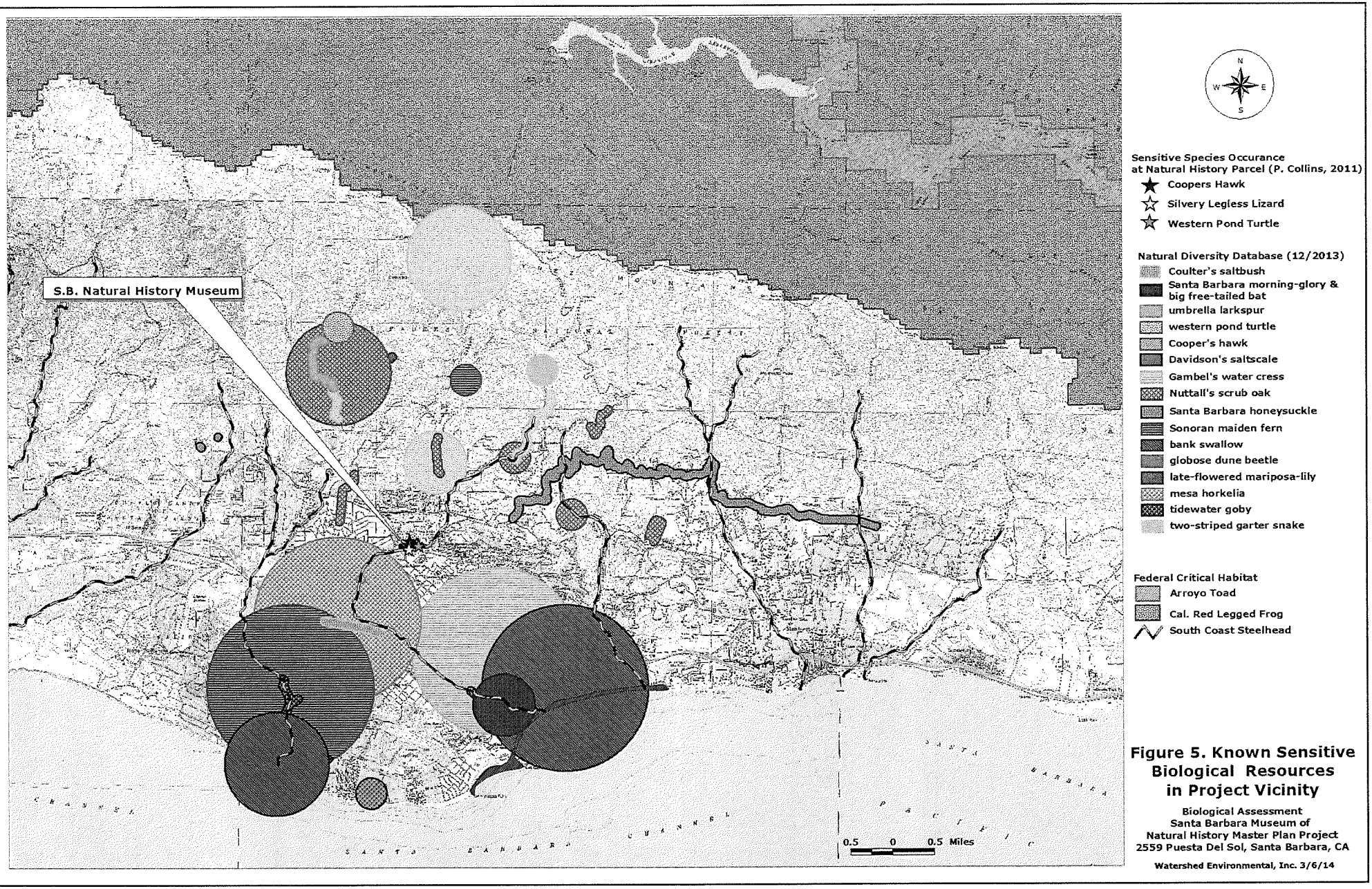


Figure 5. Known Sensitive Biological Resources in Project Vicinity

Biological Assessment
Santa Barbara Museum of
Natural History Master Plan Project
2559 Puesta Del Sol, Santa Barbara, CA

Watershed Environmental, Inc. 3/6/14

7.0 PROJECT IMPACTS

This section describes the potential short- and long-term impacts to biological resources resulting from the proposed construction and operation of the SBMNH 2014 Master Plan Project. Short-term impacts are those associated with site preparation and construction. Long-term impacts are those that would persist after construction and landscaping have been completed. Since construction of the 27 individual project components (refer to Table 1) may occur during a 10-15 year period, it is imperative that the lead agency responsible for environmental review of the project understand that the term "short-term impacts" used in this report means impacts that could occur over a period of a year for a large project component such as the remodel of the Marine/Paleo Hall, to several weeks for a small project component such as the creation of an Americans with Disability's Act compliant path of travel between whale courtyard and Museum's front entry.

The California Environmental Quality Act (CEQA) requires that the potential effects of a project be evaluated by the lead agency responsible for issuing a permit. In this case, the City of Santa Barbara is the lead agency. Factors are considered to have a "significant effect on the environment" if they cause a substantial or potentially substantial adverse change in any of the existing physical conditions within the area affected by the project (CEQA Guidelines 15382).

California Environmental Quality Act (CEQA) Section 15065 states that a Lead Agency shall find that a project may have a significant effect on the environment and thereby require an Environmental Impact Report (EIR) to be prepared for the project where the project has the potential to: degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

The "Biological Resources" section of CEQA Appendix G recommends that the lead agency evaluate the potential biological effects of a project by asking the following questions and assessing the level of impact significance:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?;
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?;
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?;
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?;
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?;

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

CEQA Appendix G "Mandatory Findings of Significance" are determined by the lead agency based on the following questions and the level of impact significance:

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?;

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

To facilitate the CEQA environmental review of the project, we have classified biological impacts into the following categories:

a. beneficial
b. adverse, significant, and nonmitigable
c. adverse, significant, and mitigable
d. adverse and not significant
e. none, no impact

7.1 Botanical Resources

Impact 1. Disturbance & Loss of Vegetation Communities & Wildlife Habitat
Almost all of the 27 project components (refer to table 1 and Figures 2A and 2B) will occur in areas that are currently developed and/or disturbed. Exceptions to this include: 1) the installation of a new boardwalk leading to the bioswale (Item No. 1), 2) woodland habitat restoration and conversion of an existing drainage ditch into a bioswale (Item No. 2), 3) Relocation of the trash and recycling enclosure (Item No. 4).

The new boardwalk leading to the bioswale will be raised to avoid disturbing tree roots but will permanently cover approximately 560 sq. ft. of ground cover vegetation within undeveloped coast live oak woodland habitat. Construction of the new 525 sq. ft. trash and recycling enclosure and surrounding pad will permanently impact 492 sq. ft. of ornamental vegetation. The permanent loss of 560 sq. ft. of understory vegetation to create a boardwalk to the bioswale within undeveloped coast live oak woodland habitat and loss of 492 sq. ft. of ornamental vegetation to create a new trash and recycling enclosure are considered to be an ***adverse and not significant*** short-term impact which will be more than offset by performance of habitat restoration within a 3.72 acre area in the western portion of the Museum property. Long term impacts to vegetation communities and wildlife habitat caused by use of the boardwalk and trash and recycling enclosure are considered to be **none, no impact**.

The existing developed and landscaped areas of the main campus contain a large number of coast live oak trees with canopies that overhang structures, walkways, pavement, and ornamental groundcover vegetation. Project component No. 15 (refer to Table 1) will remove approximately 1,116 sq. ft. of asphalt from the south side of the Marine/Paleo building. The asphalt that is removed from this location will be replaced with landscape vegetation. With the exception of the new boardwalk to the bioswale overlook (Item 1) All of the improvements to walkways, and new decking (Items 6, 7, 9, 12, 13, 14, 15, 16 and 17) will occur in areas that are currently a paved surface, dirt path, mulched pathway, or landscaped with ornamental landscape vegetation. Short-term impacts to ornamental landscape habitat caused by improvements to walkways and installation of new decking are considered ***adverse and not significant*** because the habitat that will be removed or disturbed is managed ornamental landscaping with relatively low wildlife habitat value. Long-term impacts to vegetation communities and wildlife habitat caused by use of the walkways and decking are considered to be **none, no impact**.

The only project components that are proposed within the 25 ft. wide Mission Creek setback area are: removal of asphalt from the south side of the Marine/Paleo building to create a landscape planter and construction of a new 1,900 sq. ft. raised deck over existing asphalt pavement (Item 15). In addition to these project components, the existing paved area between the creek top of bank and Marine/Paleo Hall will be used for temporary equipment and material storage while construction activities are occurring (refer to Figure 2A and 2B). The construction of these project components and temporary use of the existing asphalt as an equipment and material storage area within the 25 ft. wide creek setback area are anticipated to have a short-term ***adverse and not significant*** impact to vegetation communities and wildlife habitat during construction with implementation of impact avoidance and reduction measures specified in the project description. Long-term impacts to vegetation communities and wildlife habitat from use of the project components within the 25 ft. creek buffer zone are considered to be **none, no impact**.

The project includes the performance of habitat restoration activities (Item 2) within an 3.72 acre open space area located in the western portion of the Museum property (refer to Figure 7). The restoration goals are:

1) Provide an outdoor space where Museum visitors and the public can explore, experience, and learn about nature.
2) Create a living exhibit of sustainable natural habitat
3) Support the continuation and expansion of ecosystem functions, processes and services.
4) Provide an opportunity for the public to learn about and participate in the enhancement, restoration, and management of oak woodland, riparian woodland, bioswale-freshwater marsh, and native grassland habitats.
5) Modest improvement to the quality of stormwater runoff captured from the Museum parking lot before it flows into Mission Creek

Habitat restoration will be gradual process that will be undertaken in small (1-acre size or less) areas by Museum staff, volunteers, and paid landscape/tree contractors. Habitat restoration will involve the removal of some of the non-native trees (mostly eucalyptus), shrubs and understory vegetation and the planting of native trees, shrubs and groundcover vegetation typically found in coast live oak and riparian woodlands, and long-term maintenance to care for the new plantings and remove any non-native vegetation that re-grows after the initial weed removal efforts are completed. The Museum's habitat

restoration effort also includes the planting of freshwater marsh vegetation within an existing drainage swale to create a bioswale to treat stormwater runoff. The existing drainage ditch currently receives surface water runoff from the Museum parking lot and additional local street stormwater runoff from Puesta del Sol. The conversion of this drainage ditch into a bioswale will involve the removal of non-native understory vegetation, the installation of seven sandstone rock weirs, addition of gravel and organic mulch to the soil, planting of native freshwater marsh vegetation, and installation of an irrigation system. The planting pallet for the woodland habitat restoration and bioswale is provided in Table 7.

Table 7. Woodland and Bioswale Restoration Planting Pallet

Scientific Name	Common Name	Stratum
Woodland Pallet		
Artemisia douglasiana	Mugwort	herb
Clematis ligusticifolia	creek clematis	vine
Clinopodium (Satureja) douglasii	yerba buena	herb
Elymus condensatus	giant wild rye	herb
Heteromeles arbutifolia	Toyon	shrub
Muhlenbergia rigens	deer grass	herb
Penstemon heterophyllus var. *heterophyllus*	foothill penstemon	herb
Platanus racemosa	western sycamore	tree
Quercus agrifolia	coast live oak	tree
Ribes amarum	bitter gooseberry	shrub
Ribes malvaceum var. *malvaceum*	chaparral current	shrub
Ribes speciosum	fuchsia-flowered gooseberry	shrub
Rosa californica	wild rose	herb
Rubus ursinus	California blackberry	vine
Salvia spathacea	hummingbird sage	herb
Scrophularia californica	figwort/bee plant	shrub
Solidago velutina subsp. *californica*	California goldenrod	herb
Stachys bullata	common wood mint	herb
Stipa (Nassella) pulchra	purple needlegrass	herb
Symphoricarpos mollis	creeping snowberry	shrub
Umbellularia californica	California bay	tree
Venegasia carpesioides	canyon sunflower	herb
Bioswale Pallet		
Anemopsis californica	yerba mansa	herb
Carex barbarae	Santa Barbara sedge	herb
Eleocharis macrostachya	common spikerush	herb
Juncus effusus	spreading rush	herb
Juncus patens	common rush	herb
Juncus xiphioides	brown-headed rush	herb
Mimulus cardinalis	scarlet monkey flower	herb
Pteridium aquilinum var. pubescens	western bracken	herb

The short-term impact to vegetation communities and wildlife habitat caused by performance of habitat restoration activities and conversion of a drainage swale into a bioswale is considered to be ***adverse and not significant.*** The long-term impact to vegetation communities and wildlife habitat caused by management and maintenance of the habitat restoration area and bioswale are considered **beneficial** because native riparian and native oak woodland vegetation will replace non-native, non-woodland species in in the 3.72 acre habitat restoration area and will increase the ecological functions of the habitat and the anthropogenic value of the open space on the Museum property.

Other impacts to vegetation communities and wildlife habitat include vegetation management for fire protection purposes within 100 ft. of structures as required by the California Public Resources Code (2009), the City of Santa Barbara *Wildland Fire Plan* (2004), and *Santa Barbara County Communities Wildfire Protection Plan* (2006) for Mission Canyon. Fuel management activities are described in the Museum's 2014 *Fire Protection and Emergency Evacuation Plan* prepared by Dukek for the 2014 Master Plan project. A brief description of fuel management activities that will be performed by the Museum is provided in this impact assessment section; refer to the Museums 2014 *Fire Protection and Emergency Evacuation Plan* for more detail. The types of fuel management actions vary dependent upon the distance from structures; generally, fuel management activities are greatest closest to a structure and decrease with greater distance from a structure. The City of Santa Barbara Fire Department recommends the following management actions within each fuel management zone:

- **Zone 1** (0–30 feet from structures) - Vegetation should be low growing, irrigated plants. Focus should be on ground covers not more than 12 inches in height or succulents. Use non-flammable materials for paths, patios, and mulch. Trees should not be planted closer than 15 feet from a structure, with exceptions for existing, maintained native oak trees.
- **Zone 2** (30–50 feet from structures) - Vegetation should be maintained with a reasonably open character. Landscape plants in this zone should be low growing ground covers and succulents resistant to fire. Irrigation shall be provided to plants other than native oak trees. Shrubs and shrub groupings up to 3 feet in height can be planted but should have at least 18 feet spacing between other shrubs or shrub groups and other trees. Shrubs can be planted in clusters not more than 10 feet in diameter. Adequate vertical clearance from shrubs and tree crowns must be maintained to avoid laddering of fire into tree crowns. Trees should be spaced at least 30 feet apart to prevent crowns from touching once fully grown. *SBMNH project site includes areas with closed tree canopy of native species. These areas are allowable as they form a shaded fuel break less susceptible to ignition as long as understory fuels are maintained.*
- **Zone 3** (50–70 feet from the structure) - Vegetation may be denser and taller than the vegetation in Zone 2 and should consist of irrigated native and Mediterranean plantings not higher than 4–6 feet. Shrubs should be spaced at least 18 feet away from each other. Shrubs can be planted in clusters not more than 10 feet in diameter, but should have at least 18 feet between clusters. Trees should be spaced at least 30 feet apart to prevent crowns from touching once fully grown. Native oaks provide a shaded fuel break and may include well-maintained understory vegetation.

- **Zone 4** (70–100 feet from the structures) - Vegetation is typically non-irrigated but may be irrigated depending upon the site characteristics. There is no limit to plant height. Shrubs planted in this area should have 18 feet spacing or be planted in clusters with at least 18 feet spacing. Trees can be planted in groups or with individual spacing at least 30 feet from other trees. Native riparian/oak woodland forms a closed canopy and minimizes understory growth, forming a shaded fuel break. The riparian trees within this zone are acceptable as long as understory ladder fuels, non-native species, dead/dying plants, and particularly flammable species are eliminated.

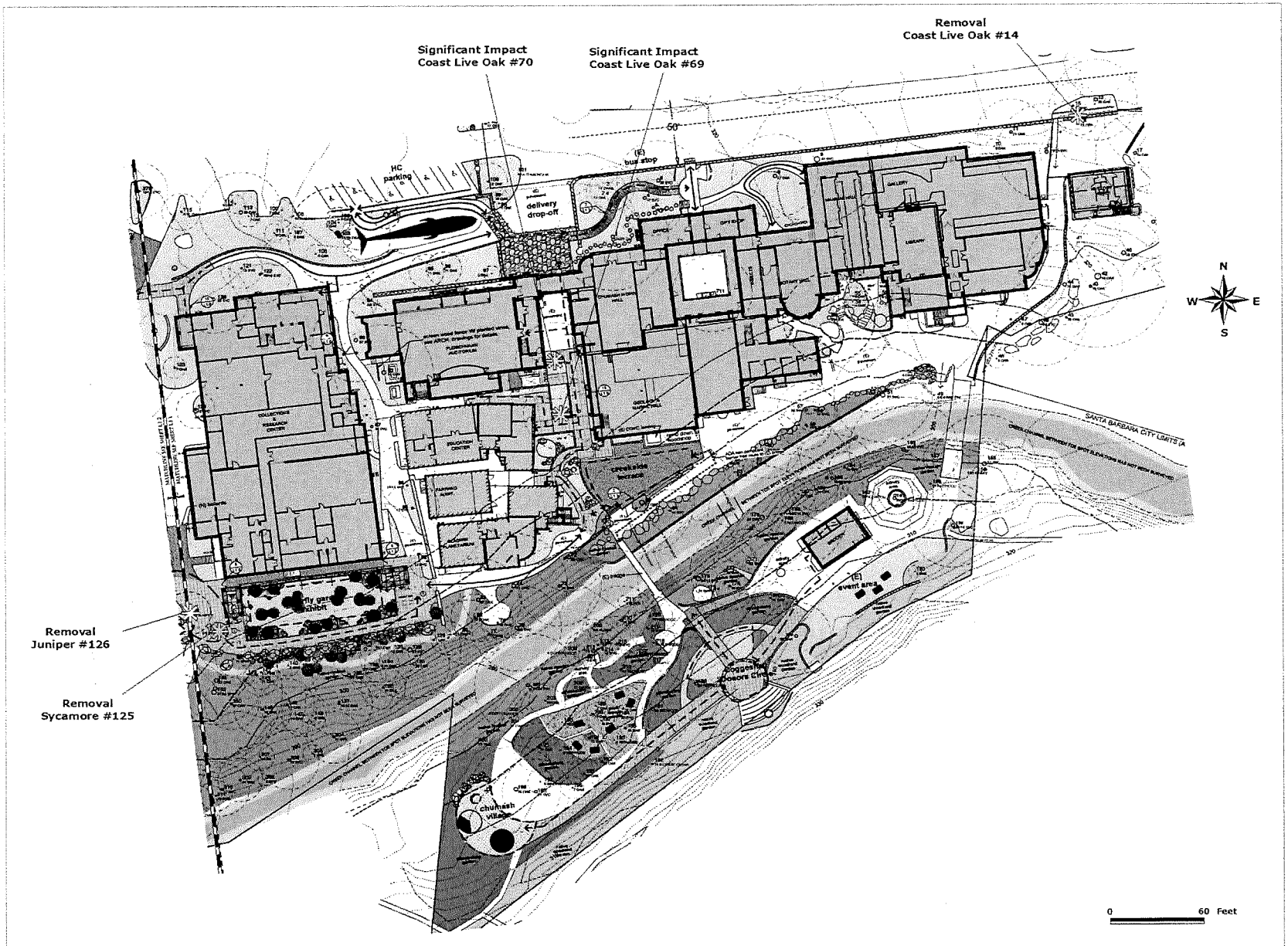
The only anticipated impact to vegetation communities and habitat types caused by performance of fuel management activities will be periodic pruning of vegetation, and removal of any standing dead vegetation within the fuel management zone. Short- and long-term impacts to vegetation communities and habitat types caused by fuel management activities are considered to be ***adverse and not significant.***

Impact 2. Tree Removal and Disturbance
The installation of the new Butterfly Garden Exhibit (Item 12) along with the reconfiguration of existing asphalt pathways near the Collections and Research Center (Item No. 10), to maintain access to a sewer manhole in City of Santa Barbara sewer easement, will require the removal of one 8-inch diameter at breast height (DBH) native western sycamore tree (Tree Id. No. #127) and the removal of one non-native 12-inch DBH juniper tree. Both of the trees were originally planted as landscape trees by the Museum (refer to Figure 6A). The replacement of existing asphalt and re-grading to improve handicap access between Fleischmann Auditorium and the Education Center and the Geology and Marine Hall (Item No. 13) will significantly disturb (i.e. will have greater than 20 percent encroachment into critical root zones) two large (24 and 25 inch DBH) coast live oak trees (Tree Id. No. 69 & 70).

There are three natives trees (two coast live oak and one western sycamore) growing on the shoulder of Puesta del Sol north of the Hazard Carriage House, between the Museum rock wall and edge of road pavement. When the new sidewalk on the south side of Puesta del Sol to the Mission Canyon Road/Puesta del Sol intersection is constructed, one of these trees, a 13 inch DBH coast live oak tree (Tree Id. No. 14) with a trunk that is growing horizontally along the ground will likely need to be removed. The segment of the new sidewalk that passes beneath the canopy of two remaining trees (Tree Id. 13 and 15) will be designed using raised decking (if acceptable to the City) to minimize impacts to the critical root zone of these two trees. There are 123 western sycamore trees in the Museum Master Plan project area, the loss of one sycamore tree because of the Master Plan project represents a loss of less than 1 percent of the sycamore trees in the project area. There are 342 coast live oak trees on the project site and the loss of one oak tree and significant disturbance of 2 coast live oak trees represents a loss/disturbance to less than 1 percent of the total number of oak trees in Master Plan project area.

Reserve Page 11x17 Landscape

Figure 6a. Landscape Plan Depicting Completed Project (Eastern Side)



legend

- (N) wood fence
- (N) rail & post fence
- existing tree
- proposed tree
- existing tree to be removed

site accessibility legend

- (E) accessible pedestrian path
- (N) accessible pedestrian path
- (N) accessible area
- (N) pedestrian path
- (N) unimproved foot trail

material legend

permeable pavement

- permeable decorative unit paver
- permeable flagstone paver
- permeable concrete

permeable walkable surface

- deckiboardwalk (Trex tile rated ASTM E84 class A or B)
- decomposed granite
- engineered wood fiber
- mulch

impervious pavement

- natural color concrete

planting legend

- cultural / vernacular landscape gardens
- ethnobotany garden
- woodland buffer garden
- riparian garden
- native woodland garden

Potentially Impacted Trees

- CLO
- Juniper
- SYC

Match-line (Fig 6A & 6B)

Figure 6A. Landscape Plan Depicting Completed Project (Eastern Side)

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Schematic Design -Partial Site Plan Schacht | Asiani Architects · Thompson Naylor Architects Inc. - Van Atta Associates, Inc. Landacpe Architects L1.1 2/19/14

Reserve Page 11x17 Landscape

Figure 6b. Landscape Plan Depicting Completed Project (Western Side)

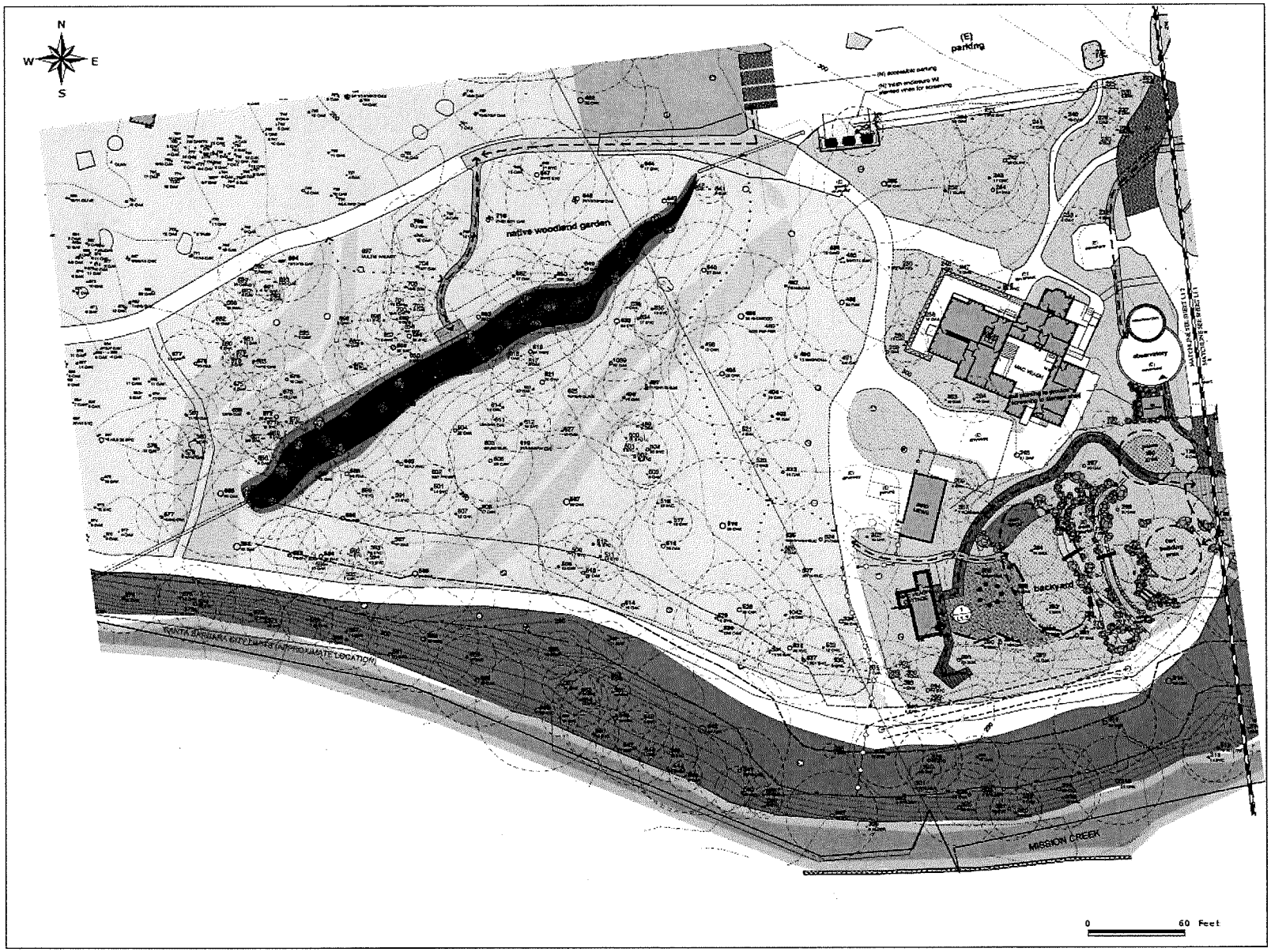

Figure 6B. Landscape Plan Depicting Completed Project (Western Side)

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Schematic Design -Partial Site Plan Schacht | Asiani Architects - Thompson Naylor Architects Inc. - Van Atta Associates, Inc. Landscape Architects L1.2 2/19/14

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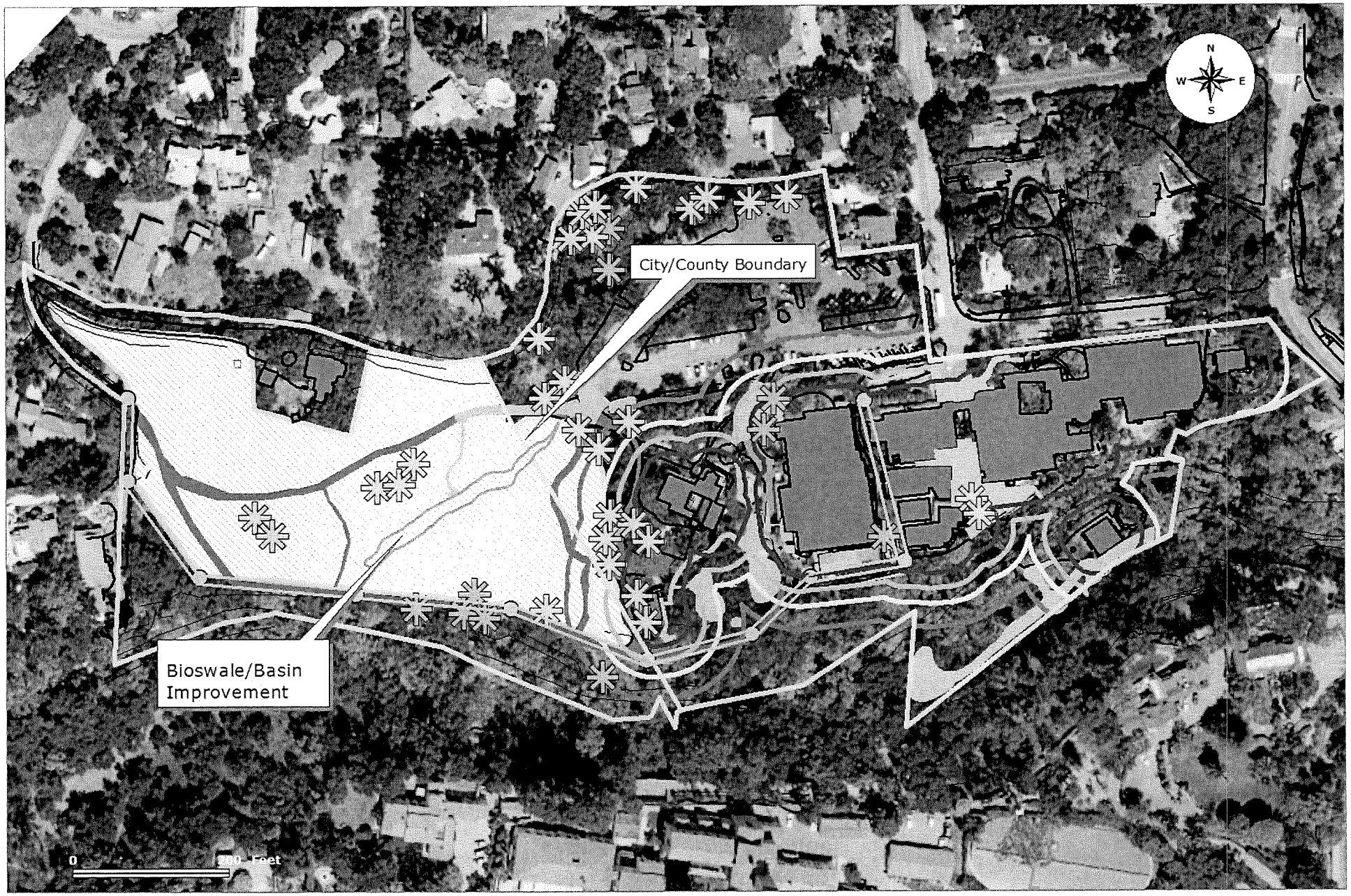
Figure 7. Woodland Habitat Restoration/Enhancement Area



Fuel Management Zones
- 0-25 ft.
- 25-50 ft.
- 50-70 ft.
- 70-100 ft.

Proposed Restoration Area (3.72 acres)

Site Improvement (2014)

Project Boundary

Proposed Replacement Tree (Van Atta Landscape Arch. 02/19/14)
- Coast Live Oak (Q=30)
- Sycamore (Q=10)

Trail

Existing Features
- Structure
- Sewer Manhole
- Sewer Easement

Figure 7. Woodland Habitat Restoration Enhancement Area

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The Museum will implement 17 tree protection measures (refer to project description) prior to and during construction in an attempt to retain the two coast live oak trees growing on the east and southeast side of Fleischmann Auditorium that may be significantly disturbed by the 2014 Master Plan project, however since the Museum cannot assure the survival of these trees, they have incorporated standard 10:1 native tree replacement into the project landscape plans (refer to Figures 6a and 6b).

Short-term impacts caused by the removal of one western sycamore, and one coast live oak tree, and significant disturbance of 2 coast live oak trees is considered to be ***adverse and not significant*** with implementation of applicant proposed impact avoidance and reduction measures. The landscape plans for the project prepared by Van Atta Associates Landscape Architects specify the planting of 30 coast live oak and 10 sycamores on the 15.43-acre Santa Barbara Museum of Natural History Museum property (refer to Figures 6A, 6B, and 7). The 40 native trees that will be planted as part of the Master Plan project landscaping meet the City's typical 10:1 native tree replacement requirements. Coast live oak trees are a relatively slow growing species and replacement of the oak tree canopy cover that may be lost should the two trees that will be disturbed die, is expected to take 10-15 years using 1-gallon container size trees (Norman H. Pillsbury and John P. Joseph 1991).

Long-term impacts to native trees are considered to be ***adverse and not significant.*** The majority of the project effects to native trees will occur during construction. The only anticipated impact to native trees during the post-construction operation phase of the SBMNH Master Plan project is the periodic performance of tree pruning for fire protection purposes (refer to Figure 7) and tree health. Maintenance activities within the fuel management zones are not anticipated to require any native tree removal or disturbance of tree critical root zones.

7.2 Wildlife Species and Habitats

Impact 3. Wildlife Migration and Dispersal

The resident wildlife species that are present on the SBMNH property, are relatively common species that are adapted to an environment with frequent human disturbance. The more mobile of these species are expected to relocate temporarily to nearby available areas such as Rocky Nook Park during site preparation and construction. These same mobile species are expected to re-occupy the developed portions of the museum grounds upon completion of construction activities. The only species known to migrate through the Museum property are southern steelhead fish that migrate up and down Mission Creek during spawning (December–April) and smolting (usually in the spring) events when surface water is actively flowing in the creek.

Given the proximity of some of the 2014 Master Plan project components to Mission Creek, the Museum has incorporated special precautionary impact avoidance measures into their project description to ensure that demolition, construction, and habitat restoration activities do not harm this federally endangered species or the aquatic habitat it depends upon. Potential impacts to southern steelhead and their habitat are evaluated in Impact No. 5 below. Applicant proposed special protection measures for southern steelhead are included in the project description.

Short-term migration and dispersal impacts to wildlife from the SBMNH Master Plan project are considered ***adverse and not significant*** with implementation of applicant

proposed impact avoidance and reduction measures. Long-term project impacts to wildlife migration and dispersal are considered **none, no impact**.

Impact 4. Increased Noise and Light Wildlife Disturbance
Increased noise and light have the potential to disrupt wildlife activity particularly in riparian and oak woodland habitats and aquatic habitat adjacent to developed areas. We anticipate that noise levels will temporarily increase during the performance of exterior demolition and construction activities. Long-term noise impacts are not expected after completion of construction activities because no change is proposed in visitor use activities or number of visitors.

No change in the short-term amount or type of night lighting is expected during the performance of demolition and construction activities because construction activities will only occur during daylight hours. Long-term project impacts to wildlife species and habitat may be caused by exterior lighting that is raised and unshielded or directed upward into the tree canopy. This is particularly problematic in developed portions of the Museum property that are adjacent to or within coast live oak woodland and riparian habitat as bright lights can disrupt diurnal and nocturnal wildlife patterns, breeding, bird nesting and bird foraging activity.

Short-term impacts of increased noise on wildlife activity is considered ***adverse and not significant.*** The area where the project will occur is already subject to frequent human disturbance and the wildlife species residing and utilizing these areas are adapted and accustomed to high levels of noise. Noise levels over the long-term life of the project are expected to remain at current pre-project levels and therefore wildlife disturbance caused by noise during operation of the project are considered to be **none, no impact.**

Short-term impacts of night lighting on wildlife are considered to be ***none, no impact***. Long-term impacts of night lighting on wildlife are considered to be ***adverse and not significant*** with implementation of applicant proposed impact avoidance and reduction measures (refer to project description).

7.3 Sensitive Species

Impact 5. Direct and Indirect Impacts to Southern Steelhead
Southern Steelhead is a federally endangered anadromous fish species that migrates from the ocean into fresh water creeks and rivers to spawn and then returns to the ocean after they have laid their eggs. (Federal Register 2006). This species is very well adapted to the climatic conditions that exist in Southern California. During drought years when there is little or no creek flow adult fish do not spawn, and juvenile fish will remain in the upper reaches of creeks and rivers where there is flowing water and deep pools they do not attempt to migrate to the ocean until conditions are favorable. Adult fish typically return to the rivers and streams where they were born, but are also known to spawn in previously unoccupied rivers, creeks and streams where they have historically not been known to occur, when conditions are favorable.

Southern steelhead are known to migrate from the Pacific Ocean into Mission Creek and the 780 ft. long segment of Mission Creek that flows through the Museum property is federally designed critical habitat (Figure 5) for this species (Federal Register. 2006). Steelhead have been documented upstream as far as the old mission dam located on the Santa Barbara Botanic Garden property. Mission Creek has been identified as a "core 1" stream for steelhead by the National Marine

Fisheries Service. This designation means that habitat restoration of Mission Creek for steelhead is a priority for the recovery of this endangered species (National Marine Fisheries Service 2009).

The 2014 Museum Master Plan project does not include any activities within the aquatic habitat of Mission Creek but does include work adjacent to the creek banks. The primary threat to steelhead from the 2014 Master Plan project is the potential degradation of Mission Creek water quality caused by erosion and/or the release of sediment-laden runoff from areas under construction or being restored. Given the proximity of project components to Mission Creek there is the potential for demolition debris, soil, sediment, and other contaminates to fall or wash down into Mission Creek which could adversely affect the water quality of Mission Creek and southern steelhead critical habitat. Special precautionary steelhead habitat protection measures will be implemented by the applicant (see project description) and the construction contractor during performance of demolition and construction activities near the creek to ensure that debris, soil, and sediment and other contaminants do not disturb, impair, or otherwise degrade southern steelhead critical habitat.

Currently no treatment or filtration of stormwater runoff takes place on the Museum property. Stormwater runoff from the Museum property flows directly into Mission Creek via paved drainage swales and several small diameter storm drain pipes. The completed project will filter stormwater runoff from the existing museum parking lot through a bioswale designed to trap sediment, remove excess nutrients, and break down common hydrocarbon based pollutants via microbial bacteria. This filtration is expected to moderately improve the quality of stormwater runoff released to Mission Creek and improve the aquatic habitat used by southern steelhead.

Short-term direct and indirect impacts to southern steelhead are considered to be ***adverse and not significant*** with implementation of applicant proposed impact avoidance and reduction measures (refer to project description).

Long-term direct and indirect impacts to southern steelhead are considered to be ***beneficial***. The project upon completion will improve stormwater quality that runs off of the Museum parking lot into Mission Creek and will improve the 3.72 acre habitat quality of the oak and riparian woodland habitat adjacent to Mission Creek.

Impact 6. Direct and Indirect Impacts to Nesting Birds

Thirty-two species of birds have historically been known to nest on the Museum property including a Cooper's hawk and a red-shouldered hawk (refer to Table 5). The Cooper's and red-shouldered hawks are the only raptors known to have previously nested on the Museum property. There are no known communal raptor roost sites on the SBMNH property. During the performance of our biological surveys no active nests were found, but given the site history, we assume that birds are nesting in the area. The potential exists for disturbance of active raptor nests, and other bird nests in buildings and trees within and adjacent to construction. Raptor nests are specifically protected by Section 3503.5 of the California Department of Fish and Game Code and the nests of 1,026 species of migratory bird are protected by the Federal Migratory Bird Treaty Act (USFWS 2011).

Short-term direct and indirect impacts to active raptor nests, and migratory bird nests are considered to be ***adverse and not significant*** with implementation of applicant proposed impact avoidance and reduction measures (refer to project description).

Long-term impacts to raptor nests and migratory bird nests are considered to be ***none, no impact***. Raptors and other birds will choose appropriate nesting sites where they will likely not be disturbed by ongoing Museum activities.

Impact 7. Direct and Indirect Impacts to Sensitive Reptiles
The sensitive reptiles known and with a potential to occur on the Museum property are western pond turtles and silvery legless lizards. Both are listed as "species of special concern" by the California Department of Fish and Wildlife, but not as threatened or endangered, nor are they candidates for listing (CDFG 2011).

Western pond turtles are rarely seen in the segment of Mission Creek that flows through the Museum property. Project activities will occur in upland areas beyond the topographic top of the creek bank. The creek banks adjacent to the Museum main campus are considered to be too steep for this species to crawl out of the creek bed, up the creek banks, and into the adjacent upland area where Master Plan project activities will occur. For this reason, Short- and long-term project impacts to western pond turtles are considered to be **none, no impact**.

One silvery legless lizard was found a few years ago near the butterfly pavilion in a pile of woodchips/compost. It is not known whether this species was transported to the Museum property in the woodchips/compost or if the animal originated onsite and moved into the woodchip/compost pile after it was deposited. This reptile typically occurs in sandy soils and in deep accumulations of leaf litter. Suitable habitat for this species occurs beneath the undeveloped oak woodland and oak/sycamore riparian habitat in the western portion of the Museum property.

Short-term impacts to silvery legless lizards, are considered to be ***adverse and not significant***. The only project components proposed in the undeveloped oak woodland and oak/sycamore riparian habitat where this species has the potential to occur are: replacement of 1,105 sq. ft. of dirt path with decomposed granite and installation of a 560 ft. long raised boardwalk from the decomposed granite path to a bioswale overlook (Item No. 1), and the restoration of woodland habitat and conversion of an existing drainage ditch into a bioswale (Item No. 2). Long-term direct and indirect impacts to sensitive species of reptiles are considered to be **none, no impact**.

7.4 Surface Water Quality

Impact 8. Erosion and Sedimentation of Mission Creek
Erosion causes sedimentation of creeks and degrades water quality. Suspended sediment is detrimental to aquatic biota and can smother invertebrates and amphibian eggs, elevate water temperatures, and correspondingly decrease dissolved oxygen levels. The greatest potential for sediment release is during the rainy season (November-March), when exposed soil or excavations are left unprotected. During the dry season, potential water quality impacts are greatly reduced, but could still occur if a water or sewer line were accidentally ruptured during demolition or construction.

Given the proximity of the project to Mission Creek, short-term impacts to water quality from erosion and sedimentation are considered ***adverse and not significant*** with implementation of applicant proposed impact avoidance and reduction measures (refer to project description).

Long-term impacts to water quality from erosion and sedimentation are considered ***none, no impact***.

8.0 MITIGATION MEASURES

CEQA requires that feasible mitigation measures or alternatives be incorporated into the project description to avoid or mitigate the effects so that no significant effect on the environment will occur. The actual incorporation of mitigation depends on the type of CEQA document prepared, and can consist of applicant-proposed mitigation and/or lead agency permit condition requirements. In either case, mitigation measures are required for impacts identified as adverse and potentially significant.

Impacts identified as "adverse, significant, and nonmitigable" are those for which the implementation of mitigation measures will not reduce the impact to an insignificant level. Adverse, significant, and nonmitigable impacts require a finding of overriding consideration by the lead agency. Impacts identified as "adverse, significant, and mitigatable" are those that can be reduced to an insignificant level by implementation of appropriate mitigation measures. Mitigation measures are not required under CEQA for impacts identified as "adverse and not significant." The lead agency can recommend mitigation measures to further reduce impacts consistent with local policy goals and objectives.

Mitigation 1. Loss of Vegetation Communities and Wildlife Habitat
Mitigation is not required because short-term project impacts to vegetation communities and wildlife habitat, while adverse, are not significant and long-term impacts are considered to be none, no impact.

Mitigation 2. Removal of Native Trees
Mitigation is not required because short-term project impacts to native trees are considered adverse, and not significant with implementation of applicant proposed tree protection and replacement measures. Mitigation for long-term native tree impacts caused by performance of fuel management activities is not proposed or required as impacts are considered to be adverse but less than significant.

Mitigation 3. Wildlife Migration and Dispersal
Mitigation is not required for short- and long-term impacts to wildlife migration and dispersal because project impacts considered none, no impact.

Mitigation 4. Increased Noise and Light Wildlife Disturbance
Mitigation for short- and long term noise impacts to wildlife is not required or proposed because noise impacts are considered to be respectively adverse but less than significant, and none, no impacts.

The applicant as part of the project description is proposing to implement mitigation for long-term night lighting impacts to wildlife (see project description). No mitigation is proposed for short-term night lightning impacts to wildlife as impacts are considered to be none, no impact.

Mitigation 5. Direct and Indirect Impacts to Southern Steelhead
The applicant is proposing to implement special precautionary steelhead habitat protection measures (see project description) to ensure that short-term direct and indirect impacts to southern steelhead habitat are avoided and reduced to less than significant levels. No mitigation is required or proposed for long-term direct and indirect impacts to southern steelhead as long-term project impacts are considered to be beneficial.

Mitigation 6. Direct and Indirect Impacts to Nesting Birds
The applicant is proposing in their project description to implement special bird nest protection and impact avoidance measures. With implementation of the applicant proposed measures, project impacts to nesting birds will be avoided and/or reduced to less than significant levels and no additional mitigation measures are needed.

Mitigation 7. Direct and Indirect Impacts to Sensitive Reptiles
No mitigation is required or recommended for short- or long-term direct and indirect impacts to western pond turtles or silvery legless lizards as potential impacts to these two sensitive reptile species are considered to be none, no impact, and adverse but less than significant.

Mitigtation 8. Erosion and Sedimentation of Mission Creek
The applicant will implement a variety of erosion control and water quality protection measures (see project description) during project construction to ensure short-term impacts are avoided and reduced to less than significant levels. With implementation of applicant proposed impact avoidance and minimization measures, no mitigation is needed or required for short-term erosion and sediment project impacts. Long-term project impacts to Mission Creek caused by erosion and sedimentation are anticipated to be none, no impact, therefore no long-term impact avoidance or mitigation measures are required or proposed.

9.0 CONCLUSIONS

This biological assessment found eight types of biological resource impacts from implementation of the proposed project:

1. Disturbance and Loss of Vegetation Communities and Wildlife Habitat
2. Tree Removal and Disturbance
3. Wildlife Migration, and Dispersal
4. Increased Noise and Light Wildlife Disturbance
5. Direct and Indirect Impacts to Southern Steelhead
6. Direct and Indirect Impacts to Nesting Birds
7. Direct and Indirect Impacts to Sensitive Reptiles
8. Erosion and Sedimentation of Mission Creek

The short- and long-term effects of these impacts were evaluated per the CEQA guidelines and were found to be either 1) less than significant with implementation of applicant proposed impact avoidance and reduction measures, 2) none, no impact, or 3) beneficial.

The following actions are recommended to ensure project consistency with the City of Santa Barbara's tree protection ordinances.

1. Obtain a vegetation removal permit prior to the removal of any trees with a greater than 4 in. diameter (measured 1 ft. above ground level) located within the street setback area and prior to the removal of 1,000 sq. ft. or more of native vegetation

or 2,000 sq. ft. or more of nonnative vegetation. This includes tree and vegetation removal performed for fire hazard reduction and habitat restoration purposes. Additional information on vegetation removal permit requirements can be obtained from the City of Santa Barbara website at: http://www.santabarbaraca.gov/NR/rdonlyres/ 954B92A1-1F62-4527-B339-52995D704A6A/0/veg_removal.pdf

2. The landscape architect shall design the landscape plans to prevent the spread of nonnative plants. The landscape architect shall avoid using any plants for landscaping that are listed by the California Invasive Plant Council as highly or moderately invasive (CIPC 2013).

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Attachment 1
June 3, 2013 SBMNH Tree Inventory

June 3, 2013 SBMNH Tree Inventory
Prepared by: Bill Spiewak - Certified Master Arborist

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
1	*Quercus agrifolia*	24/25	35	XL	fair
2	*Quercus agrifolia*	13	13	M	fair
3	*Quercus agrifolia*	14	14	M	fair
4	*Platanus racemosa*	23	23	L	good
5	*Platanus racemosa*	18	18	L	good
6	*Platanus racemosa*	26	26	L	good
7	*VSM*				
8	*Quercus agrifolia*	27	27	XL	good
9	*Platanus racemosa*	41	41	XL	good
10	*Quercus agrifolia*	5	5	S	good
11	*Quercus agrifolia*	21	21	L	good
13	*Quercus agrifolia*	26	26	XL	good
14	*Quercus agrifolia*	13	13	M	good
15	*Platanus racemosa*	15	15	M	fair
17	*Quercus agrifolia*	25	25	XL	fair
18	*VSM*				
19	*VSM*				
20	*Pittosporum undulatum*	7/7	10	M	fair
21	*Pittosporum undulatum*	11	11	M	fair
22	*Pittosporum undulatum*	6/6	8	S	fair
23	*Pittosporum undulatum*	4/4	6	S	fair
24	*Pittosporum undulatum*	6/7	9	M	fair
25	*Pittosporum undulatum*	9	9	M	fair
26	*Pittosporum undulatum*	6	6	S	fair
27	*Pittosporum undulatum*	10	10	M	fair
28	*Pittosporum undulatum*	8	8	S	fair
29	*Pittosporum undulatum*	9	9	M	fair
30	*Pittosporum undulatum*	12	12	M	fair
31	*Pittosporum undulatum*	21/15	26	XL	fair
33	*Washingtonia robusta*	12	6	M	fair
34	*Platanus racemosa*	24	24	L	fair
35	*Platanus racemosa*	30	30	XL	fair
36	*Platanus racemosa*	22	22	L	fair

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
37	*Platanus racemosa*	6/5	7	S	fair
38	*Quercus agrifolia*	32	32	XL	good
39	*Quercus agrifolia*	8/5	9	M	fair
40	*Platanus racemosa*	30	30	XL	fair
41	*Pinus radiata*	19	19	L	fair
42	*Quercus agrifolia*	46	46	XL	fair
43	*Quercus agrifolia*	20	20	L	fair
44	*Platanus racemosa*	26	26	XL	fair
45	*Quercus agrifolia*	13	13	M	fair
46	*Platanus racemosa*	28	28	XL	fair
47	*Quercus agrifolia*	6	6	S	good
48	*Quercus agrifolia*	6	6	S	good
49	*Salix lasiolepis*	6/4/4	8	S	fair
50	*Quercus agrifolia*	4	4	S	good
51	*Platanus racemosa*	31	31	XL	fair
52	*Quercus agrifolia*	4	4	S	good
53	*Quercus agrifolia*	8	8	S	good
54	*Quercus agrifolia*	4	4	S	good
55	*Quercus agrifolia*	6	6	S	good
57	*Platanus racemosa*	18	18	L	fair
58	*Platanus racemosa*	14	14	M	fair
59	*Platanus racemosa*	14/8	16	M	fair
60	*Platanus racemosa*	22	22	L	fair
61	*Quercus agrifolia*	4	4	S	good
62	*Quercus agrifolia*	6	6	S	good
63	*Quercus agrifolia*	6	6	S	good
64	*Platanus racemosa*	14	14	M	fair
65	*Quercus agrifolia*	33	33	XL	good
66	*VSM*				
67	*VSM*				
68	*VSM*				
69	*Quercus agrifolia*	24	24	L	fair
70	*Quercus agrifolia*	25	25	XL	fair
71	*VSM*				
72	*Quercus agrifolia*	22	22	L	fair
73	*Platanus racemosa*	26	26	XL	fair

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
74	*Quercus agrifolia*	31	31	XL	good
75	*Platanus racemosa*	28	28	XL	fair
76	*Quercus agrifolia*	10	10	M	fair
77	*Platanus racemosa*	12	12	M	fair
78	*VSM*				
79	*Quercus agrifolia*	21	21	L	good
80	*Quercus agrifolia*	15	15	M	good
81	*Quercus agrifolia*	27	27	XL	good
82	*Platanus racemosa*	11	11	M	good
83	*VSM*				
84	*VSM*				
85	*Platanus racemosa*	17	17	M	good
86	*Platanus racemosa*	12/11	16	M	fair
87	*Platanus racemosa*	18	18	L	good
88	*VSM*				
89	*VSM*				
90	*VSM*				
91	*VSM*				
92	*Quercus agrifolia*	31	31	XL	good
93	*Quercus agrifolia*	27	27	XL	good
94	*Platanus racemosa*	7/5	9	M	fair
95	*Quercus agrifolia*	11	11	M	good
96	*Quercus agrifolia*	11	11	M	good
97	*Quercus agrifolia*	5	5	S	good
98	*Quercus agrifolia*	6	6	S	good
99	*Quercus agrifolia*	10	10	M	good
100	*Quercus agrifolia*	12	12	M	good
101	*Magnolia species*	Multi	9	M	good
102	*VSM*				
103	*Quercus agrifolia*	21/24	32	XL	fair
104	*Quercus agrifolia*	7	7	S	good
105	*Quercus agrifolia*	8	8	S	Dead
106	*Quercus agrifolia*	6	6	S	good
107	*Quercus agrifolia*	5	5	S	good

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
108	*VSM*				
109	*Quercus agrifolia*	7	7	S	fair
110	*VSM*				
111	*Quercus agrifolia*	6	6	S	good
112	*Quercus agrifolia*	7	7	S	good
113	*Quercus agrifolia*	26	26	XL	fair
114	*Quercus agrifolia*	6	6	S	good
115	*Platanus racemosa*	11/4	12	M	good
116	*VSM*				
117	*VSM*				
118	*VSM*				
119	*VSM*				
120	*Platanus racemosa*	22	22	L	good
121	*Platanus racemosa*	13	13	M	fair
122	*Platanus racemosa*	15/12	19	L	fair
123	*Quercus agrifolia*	7	7	S	fair
124	*Platanus racemosa*	12	12	M	good
125	*Quercus agrifolia*	9	9	M	good
126	*Juniperus species*	12/7	14	M	good
127	*Platanus racemosa*	8/4	9	M	fair
128	*Quercus agrifolia*	8/7	11	M	fair
129	*Platanus racemosa*	32	32	XL	fair
130	*Quercus agrifolia*	22	22	L	fair
131	*Quercus agrifolia*	11	11	M	fair
132	*Quercus agrifolia*	11	11	M	fair
133	*Quercus agrifolia*	22	22	L	good
134	*Quercus agrifolia*	11	11	M	fair
135	*Quercus agrifolia*	20	20	L	fair
136	*Quercus agrifolia*	14	14	M	fair
137	*Quercus agrifolia*	14/15	21	L	fair
138	*Quercus agrifolia*	23	23	L	fair
139	*Quercus agrifolia*	4	4	S	good
140	*Quercus agrifolia*	7	7	S	good
141	*Platanus racemosa*	7	7	S	fair
142	*Pinus radiata*	11	11	M	fair

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
143	*Quercus agrifolia*	11	11	M	fair
144	*VSM*				
145	*Quercus agrifolia*	18	18	L	fair
146	*Quercus agrifolia*	17	17	M	fair
147	*Quercus agrifolia*	14	14	M	fair
148	*Quercus agrifolia*	6	6	S	fair
149	*Quercus agrifolia*	6	6	S	fair
150	*Quercus agrifolia*	17	17	M	fair
151	*VSM*				
152	*Platanus racemosa*	27/34	43	XL	fair
153	*Quercus agrifolia*	29	29	XL	fair
154	*Quercus agrifolia*	11	11	M	fair
155	*Platanus racemosa*	32	32	XL	fair
156	*Umbellularia californica*	14/11/8	20	L	fair
157	*Sequoia sempervirens*	11	11	M	good
158	*Sequoia sempervirens*	11	11	M	good
159	*Platanus racemosa*	23/14	27	XL	fair
160	*Quercus agrifolia*	4	4	S	good
161	*Sequoia sempervirens*	23/19	30	XL	good
162	*Sequoia sempervirens*	12	12	M	good
163	*Platanus racemosa*	28/20	34	XL	fair
164	*Platanus racemosa*	10	10	M	fair
165	*Platanus racemosa*	19/22	29	XL	fair
166	*Quercus agrifolia*	14	14	M	fair
167	*Quercus agrifolia*	11	11	M	fair
168	*Platanus racemosa*	35/14	38	XL	fair
169	*Sequoia sempervirens*	9	9	M	good
170	*Quercus agrifolia*	34	34	XL	fair
171	*Platanus racemosa*	21	21	L	fair
172	*Quercus agrifolia*	22	22	L	Dead
173	*VSM*				
174	*Platanus racemosa*	16	16	M	fair
175	*Acer macrophyllum*	14	14	M	fair
176	*Platanus racemosa*	18/34	38	XL	fair
177	*VSM*				
178	*Quercus agrifolia*	11	11	M	fair

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
179	*Quercus agrifolia*	22	22	L	good
180	*Sequoia semperviren*	24	24	L	good
181	*Sequoia semperviren*	25	25	XL	good
182	*Calocedrus decurrens*	11	11	M	good
183	*Quercus agrifolia*	12	12	M	fair
184	*Platanus racemosa*	20	20	L	fair
185	*Quercus agrifolia*	15	15	M	fair
186	*Sequoia semperviren*	5	5	S	good
187	*Platanus racemosa*	8	8	S	fair
188	*Quercus agrifolia*	15	15	M	fair
189	*Quercus agrifolia*	7	7	S	fair
190	*Sequoia semperviren*	5	5	S	good
191	*Quercus agrifolia*	15	15	M	fair
192	*Quercus agrifolia*	15	15	M	good
193	*Quercus agrifolia*	10	10	M	fair
194	*Sequoia semperviren*	9	9	M	fair
195	*Quercus agrifolia*	16	16	M	fair
196	*Quercus agrifolia*	7	7	S	fair
197	*Juglans nigra*	8	8	S	fair
198	*Platanus racemosa*	21	21	L	fair
199	*Quercus agrifolia*	28	28	XL	fair
200	*Pinus radiata*	20	20	L	fair
201	*Pinus radiata*	15	15	M	fair
202	*Populus trichocarpa*	4	4	S	fair
203	*Quercus agrifolia*	10	10	M	fair
204	*Platanus racemosa*	24/24	34	XL	fair
205	*VSM*				
206	*Cedrus deodara*	22	22	L	fair
207	*Platanus racemosa*	5	5	S	fair
208	*Populus trichocarpa*	4	4	S	fair
209	*Alnus rhombifolia*	5/3	6	S	fair
210	*Platanus racemosa*	22	22	L	fair
211	*Alnus rhombifolia*	4	4	S	good
212	*Platanus racemosa*	12	12	M	fair
213	*Platanus racemosa*	15	15	M	fair
214	*Platanus racemosa*	10	10	M	fair

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
215	*Platanus racemosa*	18	18	L	fair
216	*Sequoia semperviren*	13	13	M	good
217	*Acer macrophyllum*	14	14	M	fair
218	*Sequoia semperviren*	11	11	M	fair
219	*Platanus racemosa*	12	12	M	fair
220	*Sequoia semperviren*	14	14	M	good
221	*Pseudotsuga menziesii*	9	9	M	fair
222	*Populus trichocarpa*	5	5	S	fair
223	*Quercus agrifolia*	4	4	S	fair
224	*VSM*				
225	*Quercus agrifolia*	6	6	S	fair
226	*Quercus agrifolia*	5	5	S	fair
227	*Quercus agrifolia*	5	5	S	fair
228	*Quercus agrifolia*	6	6	S	fair
229	*Quercus agrifolia*	9/5	10	M	fair
230	*Quercus agrifolia*	8	8	S	fair
231	*VSM*				
232	*Quercus agrifolia*	4	4	S	fair
233	*Quercus agrifolia*	5	5	S	fair
234	*VSM*				
235	*VSM*				
236	*VSM*				
237	*VSM*				
238	*Quercus agrifolia*	6	6	S	fair
239	*VSM*				
240	*Quercus agrifolia*	13	13	M	good
241	*Quercus agrifolia*	6	6	S	fair
242	*Olea europeae*	23	23	L	fair
243	*Quercus agrifolia*	17	17	M	good
244	*Quercus agrifolia*	24	24	L	good
245	*Quercus agrifolia*	21	21	L	good
246	*Pinus thunbergii*	8/8	11	M	good
247	*Quercus agrifolia*	6	6	S	good
248	*Quercus agrifolia*	6	6	S	fair
249	*VSM*				

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
250	*Sequoia semperviren*	7	7	S	good
251	*VSM*				
252	*Olea europeae*	17	17	M	fair
253	*Quercus agrifolia*	10/12	16	M	fair
254	*Quercus agrifolia*	10	10	S	good
255	*Quercus agrifolia*	33	33	XL	dead
256	*Magnolia species*	14	14	M	fair
257	*VSM*				
258	*Quercus agrifolia*	12	12	M	fair
259	*Quercus agrifolia*	12	12	M	fair
260	*Quercus agrifolia*	12	12	M	fair
261	*VSM*				
262	*VSM*				
263	*Quercus agrifolia*	10	10	m	fair
264	*Quercus agrifolia*	13	13	M	fair
265	*Quercus agrifolia*	31	31	XL	good
266	*Quercus agrifolia*	6	6	S	good
267	*Quercus agrifolia*	20	20	L	good
268	*VSM*				
269	*Quercus agrifolia*	20	20	L	good
270	*Quercus agrifolia*	15/10	18	L	good
271	*Quercus agrifolia*	9	9	M	fair
272	*Quercus agrifolia*	9	9	M	fair
273	*Quercus agrifolia*	10	10	M	fair
274	*Quercus agrifolia*	7	7	S	fair
275	*Quercus agrifolia*	6	6	S	fair
276	*Quercus agrifolia*	17	17	M	fair
277	*Quercus agrifolia*	21	21	L	fair
278	*Quercus agrifolia*	4	4	S	fair
279	*Quercus agrifolia*	4	4	S	fair
280	*VSM*				
281	*Quercus agrifolia*	27	27	XL	fair
282	*Quercus agrifolia*	17	17	M	good
283	*Quercus agrifolia*	9	9	M	good
284	*Quercus agrifolia*	14	14	M	good
285	*Quercus agrifolia*	8/9	12	M	good

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
286	*Quercus agrifolia*	12/9/9	18	L	fair
287	*VSM*				
288	*Quercus agrifolia*	20/11	23	L	good
289	*Quercus agrifolia*	11	11	M	fair
290	*Quercus agrifolia*	9	9	M	fair
291	*Quercus agrifolia*	23	23	L	good
292	*VSM*				
293	*VSM*				
294	*Platanus racemosa*	24	24	L	fair
295	*Platanus racemosa*	7	7	S	good
296	*VSM*				
297	*Platanus racemosa*	5	5	S	fair
298	*Quercus agrifolia*	4	4	S	fair
299	*Quercus agrifolia*	6	6	S	fair
300	*Quercus agrifolia*	4	4	S	fair
301	*Quercus agrifolia*	7	7	S	fair
302	*VSM*				
303	*Quercus agrifolia*	13	13	M	fair
304	*Platanus racemosa*	17	17	M	fair
305	*Platanus racemosa*	6	6	S	fair
306	*Platanus racemosa*	19	19	L	fair
307	*Quercus agrifolia*	9	9	M	fair
308	*Platanus racemosa*	4	4	S	fair
309	*Quercus agrifolia*	14	14	M	fair
310	*Platanus racemosa*	17	17	M	fair
311	*Platanus racemosa*	10	10	M	fair
312	*Salix lasiolepis*	19	19	L	fair
313	*Platanus racemosa*	14	14	M	fair
314	*Quercus agrifolia*	38	38	XL	good
315	*Quercus agrifolia*	28	28	XL	good
316	*Quercus agrifolia*	25	25	XL	good
317	*Juglans nigra*	5	5	S	fair
318	*Platanus racemosa*	17	17	M	good
319	*Quercus agrifolia*	23	23	L	good
320	*Quercus agrifolia*	14	14	M	good
321	*Platanus racemosa*	18	18	L	good

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
322	*Quercus agrifolia*	6	6	S	fair
323	*Juglans nigra*	4	4	S	good
324	*Quercus agrifolia*	18	18	L	good
325	*Platanus racemosa*	22	22	L	fair
326	*Alnus rhombifolia*	5	5	S	good
327	*Platanus racemosa*	25	25	XL	good
328	*VSM*				
329	*Platanus racemosa*	18	18	L	fair
330	*Platanus racemosa*	4/2	4	S	fair
331	*Juglans nigra*	6	6	S	good
332	*Juglans nigra*	4	4	S	good
333	*VSM*				
334	*Platanus racemosa*	19	19	L	good
335	*Quercus agrifolia*	4	4	S	good
336	*Washingtonia robusta*	16	8	M	gone
337	*Washingtonia filifera*	28	14	XL	good
338	*Quercus agrifolia*	5	5	S	fair
339	*Washingtonia robusta*	18	9	L	good
340	*Washingtonia robusta*	12	6	M	good
341	*Quercus agrifolia*	13/7	15	M	good
342	*Quercus agrifolia*	12	12	M	good
343	*VSM*				
344	*VSM*				
345	*Pinus radiata*	26	26	XL	fair
346	*VSM*				
347	*Pinus radiata*	28	28	XL	fair
348	*VSM*				
349	*Quercus agrifolia*	16	16	M	fair
350	*Quercus agrifolia*	14	14	M	fair
351	*VSM*				
352	*VSM*				
353	*Quercus agrifolia*	14	14	M	good
354	*Quercus agrifolia*	11	11	M	fair
355	*Quercus agrifolia*	10	10	M	fair
356	*Pinus canariensis*	15	15	M	good

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
357	*Quercus agrifolia*	7	7	S	good
358	*VSM*				
359	*VSM*				
360	*VSM*				
361	*Platanus racemosa*	30	30	XL	fair
362	*Quercus agrifolia*	6	6	S	good
363	*Quercus agrifolia*	20	20	L	fair
364	*Quercus agrifolia*	21	21	L	good
365	*Heteromeles arbutifolia*	Multi/7	7	S	fair
366	*Quercus agrifolia*	13	13	M	fair
367	*Quercus agrifolia*	6	6	S	fair
368	*Quercus agrifolia*	6	6	S	fair
369	*Quercus agrifolia*	4	4	S	fair
370	*Quercus agrifolia*	5	5	S	fair
371	*Olea europeae*	9	9	M	fair
372	*Heteromeles arbutifolia*	5	5	S	fair
373	*Quercus agrifolia*	6	6	S	fair
374	*Schinus molle*	13/14	19	L	fair
375	*Quercus agrifolia*	26	26	XL	good
376	*Platanus racemosa*	22	22	L	good
377	*VSM*				
378	*Platanus racemosa*	12/13	18	L	good
379	*Quercus agrifolia*	5	5	S	good
380	*Platanus racemosa*	21	21	L	good
381	*Quercus agrifolia*	17/18/20	32	XL	good
382	*Quercus agrifolia*	12	12	M	good
383	*Platanus racemosa*	15/11	19	L	good
384	*Platanus racemosa*	11	11	M	good
385	*Quercus agrifolia*	12/12/10	20	L	fair
386	*VSM*				
387	*VSM*				
388	*VSM*				
389	*Quercus agrifolia*	23/16	28	XL	good
390	*Quercus agrifolia*	15	15	M	fair
391	*Quercus agrifolia*	20	20	L	good
392	*Quercus agrifolia*	15	15	M	good

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
393	*Quercus agrifolia*	32	32	XL	good
394	*Quercus agrifolia*	31	31	XL	good
395	*Quercus agrifolia*	25	25	XL	good
396	*Quercus agrifolia*	26	26	XL	good
397	*Quercus agrifolia*	31	31	XL	good
398	*Quercus agrifolia*	24	24	L	fair
399	*Quercus agrifolia*	29	29	XL	good
400	*Quercus agrifolia*	18	18	L	fair
401	*Quercus agrifolia*	28/19	34	XL	good
402	*Quercus agrifolia*	36	36	XL	fair
403	*VSM*				
404	*Quercus agrifolia*	18	18	L	fair
405	*Platanus racemosa*	26	26	XL	good
406	*Umbellularia californica*	6/6	8	S	fair
407	*Olea europeae*	5/3	6	S	fair
408	*Quercus agrifolia*	24/15	28	XL	fair
409	*VSM*				
410	*Quercus agrifolia*	9	9	M	fair
411	*Eucalyptus camaldulenisis*	8	8	S	fair
412	*Eucalyptus camaldulenisis*	7/7	10	M	fair
413	*Quercus agrifolia*	4	4	S	fair
414	*Quercus agrifolia*	11	11	M	fair
415	*Quercus agrifolia*	6	6	S	fair
416	*Eucalyptus camaldulenisis*	21/20/14	32	XL	fair
417	*Quercus agrifolia*	15	15	M	fair
418	*VSM*				
419	*Eucalyptus camaldulenisis*	27	27	L	fair
420	*Eucalyptus camaldulenisis*	14	14	M	fair
421	*Eucalyptus camaldulenisis*	24	24	L	fair
422	*Quercus agrifolia*	21	21	L	fair
423	*VSM*				
424	*VSM*				
425	*VSM*				
426	*Olea europeae*	5/3	6	S	fair

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
427	*Quercus agrifolia*	4	4	S	fair
428	*Quercus agrifolia*	10	10	M	fair
429	*Quercus agrifolia*	18/12	22	L	good
430	*Quercus agrifolia*	22/13	26	XL	good
431	*Quercus agrifolia*	12	12	M	fair
432	*Quercus agrifolia*	7	7	S	fair
433	*Quercus agrifolia*	6	6	S	fair
434	*Quercus agrifolia*	6	6	S	fair
435	*Quercus agrifolia*	4	4	S	fair
436	*Quercus agrifolia*	4	4	S	fair
437	*Quercus agrifolia*	4	4	S	fair
438	*Quercus agrifolia*	4	4	S	fair
439	*Quercus agrifolia*	6	6	S	fair
440	*Quercus agrifolia*	7	7	S	fair
441	*Quercus agrifolia*	6	6	S	fair
442	*Quercus agrifolia*	7	7	S	fair
443	*Quercus agrifolia*	7	7	S	fair
444	*VSM*				
445	*Quercus agrifolia*	4	4	S	fair
446	*VSM*				
447	*VSM*				
448	*Olea europeae*	8	8	S	fair
449	*Quercus agrifolia*	6	6	S	fair
450	*Olea europeae*	5/6	8	S	fair
451	*Quercus agrifolia*	23	23	L	dead
452	*Quercus agrifolia*	5/7/7	11	M	fair
453	*Quercus agrifolia*	5	5	S	fair
454	*Quercus agrifolia*	8	8	S	fair
455	*Quercus agrifolia*	4	4	S	fair
456	*VSM*				
457	*Quercus agrifolia*	9	9	M	fair
458	*Quercus agrifolia*	10	10	M	fair
459	*Quercus agrifolia*	6	6	S	fair
460	*Quercus agrifolia*	22	22	L	good
461	*Quercus agrifolia*	4	4	S	fair
462	*Quercus agrifolia*	17	17	M	fair

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
463	*Quercus agrifolia*	12	12	M	fair
464	*Quercus agrifolia*	31	31	XL	fair
465	*Olea europeae*	9/7/9	15	M	fair
466	*Quercus agrifolia*	28	28	XL	good
467	*VSM*				
468	*Quercus agrifolia*	8	8	S	fair
469	*Quercus agrifolia*	17	17	M	good
470	*Platanus racemosa*	27	27	XL	good
471	*Quercus agrifolia*	5/3	6	S	good
472	*Quercus agrifolia*	8	8	S	fair
473	*Schinus molle*	21	21	L	fair
474	*Quercus agrifolia*	5	5	S	fair
475	*Quercus agrifolia*	4	4	S	fair
476	*Quercus agrifolia*	8	8	S	fair
477	*Pinus radiata*	15	15	M	fair
478	*Quercus agrifolia*	9	9	M	fair
479	*Quercus agrifolia*	7	7	S	fair
480	*Quercus agrifolia*	17	17	M	fair
481	*VSM*				
482	*VSM*				
483	*VSM*				
484	*Quercus agrifolia*	15	15	M	good
485	*Quercus agrifolia*	8/6/7/11	16	M	good
486	*Quercus agrifolia*	30	30	XL	good
487	*Quercus agrifolia*	7/8/4/3	12	M	good
488	*Sequoia semperviren*	36	36	XL	good
489	*VSM*				
490	*Magnolia species*	15	15	M	good
491	*Quercus agrifolia*	5/4	6	S	fair
492	*VSM*				
493	*Quercus agrifolia*	15	15	M	good
494	*Quercus agrifolia*	15	15	M	good
495	*Quercus agrifolia*	29	29	XL	good
496	*Quercus agrifolia*	15	15	M	fair
497	*Quercus agrifolia*	11/12/7/15	23	L	good
498	*Quercus agrifolia*	16	16	M	fair

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
499	*Quercus agrifolia*	9	9	M	fair
500	*Platanus racemosa*	10	10	M	fair
501	*Platanus racemosa*	7	7	S	fair
502	*Platanus racemosa*	18	18	L	fair
503	*Quercus agrifolia*	8	8	S	fair
504	*Platanus racemosa*	20	20	L	fair
505	*VSM*				
506	*VSM*				
507	*Quercus agrifolia*	38	38	XL	fair
508	*Quercus agrifolia*	15	15	M	good
509	*Platanus racemosa*	17	17	M	fair
510	*Quercus agrifolia*	22	22	L	good
511	*Platanus racemosa*	14	14	M	fair
512	*Platanus racemosa*	15	15	M	fair
513	*VSM*				
514	*Quercus agrifolia*	19	19	L	good
515	*VSM*				
516	*Quercus agrifolia*	28	28	XL	fair
517	*Quercus agrifolia*	12	12	M	fair
518	*Platanus racemosa*	12	12	M	fair
519	*Quercus agrifolia*	38	38	XL	good
520	*Quercus agrifolia*	7	7	S	fair
521	*Quercus agrifolia*	4	4	S	fair
522	*Quercus agrifolia*	18	18	L	good
523	*VSM*				
524	*Quercus agrifolia*	21	21	L	fair
525	*Eucalyptus sideroxylon*	20/16/14/24	38	XL	fair
526	*Quercus agrifolia*	6	6	S	fair
527	*Eucalyptus sideroxylon*	22/14	26	XL	fair
528	*Quercus agrifolia*	28	28	XL	fair
529	*Platanus racemosa*	16	16	M	good
530	*Quercus agrifolia*	12/6	27	XL	good
531	*Umbellularia californica*	11/10	15	M	fair
532	*Platanus racemosa*	28	28	XL	fair
533	*Quercus agrifolia*	12	12	M	fair
534	*Quercus agrifolia*	26	26	XL	good

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
535	*Quercus agrifolia*	7	7	S	good
536	*Quercus agrifolia*	5	5	S	fair
537	*Platanus racemosa*	13/21	25	XL	good
538	*Platanus racemosa*	11	11	M	fair
539	*Platanus racemosa*	9	9	M	fair
540	*Platanus racemosa*	15	15	M	fair
541	*Quercus agrifolia*	22/10	24	L	fair
542	*Quercus agrifolia*	48	48	XL	good
543	*Quercus agrifolia*	9	9	M	good
544	*Platanus racemosa*	24	24	L	fair
545	*Platanus racemosa*	16	16	M	fair
546	*Quercus agrifolia*	4	4	S	fair
547	*Platanus racemosa*	21	21	L	fair
548	*Platanus racemosa*	8	8	S	fair
549	*Quercus agrifolia*	30	30	XL	fair
550	*Platanus racemosa*	14	14	M	fair
551	*Quercus agrifolia*	10	10	M	fair
552	*Quercus agrifolia*	6	6	S	fair
553	*Platanus racemosa*	12	12	M	fair
554	*Platanus racemosa*	15	15	M	fair
555	*Platanus racemosa*	10	10	M	fair
556	*Platanus racemosa*	34	34	XL	fair
557	*Quercus agrifolia*	11	11	M	fair
558	*Quercus agrifolia*	26	26	XL	good
559	*Platanus racemosa*	16	16	M	fair
560	*Quercus agrifolia*	30	30	XL	good
561	*Platanus racemosa*	21	21	L	fair
562	*Quercus agrifolia*	33	33	XL	fair
563	*Quercus agrifolia*	11	11	M	fair
564	*VSM*				
565	*Quercus agrifolia*	12	12	M	fair
566	*Quercus agrifolia*	17	17	M	fair
567	*Quercus agrifolia*	14	14	M	fair
568	*Quercus agrifolia*	12/7	14	M	fair
569	*VSM*				
570	*VSM*				

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
571	*Platanus racemosa*	13	13	M	fair
572	*Platanus racemosa*	17	17	M	good
573	*Quercus agrifolia*	11	11	M	fair
574	*Platanus racemosa*	22	22	L	fair
575	*Quercus agrifolia*	12	12		dead
576	*Quercus agrifolia*	20	20	L	good
577	*Quercus agrifolia*	10/8/6	14	M	fair
578	*Quercus agrifolia*	17	17	M	fair
579	*Quercus agrifolia*	12/12	17	M	fair
580	*Quercus agrifolia*	9	9	S	fair
581	*Quercus agrifolia*	11/13	17	M	fair
582	*Quercus agrifolia*	43	43	XL	good
583	*Eucalyptus ficifolia*	7/8/8/17	22	L	good
584	*Quercus agrifolia*	25	25	XL	good
585	*Quercus agrifolia*	10	10	M	fair
586	*Quercus agrifolia*	26	26	XL	good
587	*Quercus agrifolia*	13	13	M	fair
588	*Quercus agrifolia*	26	26	XL	fair
589	*Platanus racemosa*	7	7	S	fair
590	*VSM*				
591	*Platanus racemosa*	11	11	M	fair
592	*Platanus racemosa*	4	4	S	fair
593	*Platanus racemosa*	8	8	S	fair
594	*Platanus racemosa*	10	10	M	fair
595	*Quercus agrifolia*	7	7	S	fair
596	*Quercus agrifolia*	3	3	S	fair
597	*Quercus agrifolia*	17	17	M	good
598	*Quercus agrifolia*	3	3	S	fair
599	*Quercus agrifolia*	34	34	XL	fair
600	*VSM*				
601	*Platanus racemosa*	14	14	M	fair
602	*Ligustrum japonica*	16/7	17	M	fair
603	*Platanus racemosa*	23/17	29	XL	fair
604	*Quercus agrifolia*	22	22	L	fair
605	*Eucalyptus ficifolia*	6/7/3/3	10	M	fair
606	*Quercus agrifolia*	23	23	L	fair

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
607	*Quercus agrifolia*	12	12	M	fair
608	*Quercus agrifolia*	17	17	M	fair
609	*VSM*				
610	*Eucalyptus ficifolia*	21/15/20/7/4	34	XL	fair
611	*Eucalyptus ficifolia*	13/10/16	23	L	fair
612	*Platanus racemosa*	16	16	M	fair
613	*VSM*				
614	*Quercus agrifolia*	14	14	M	fair
615	*VSM*				
616	*VSM*				
617	*Quercus agrifolia*	5	5	S	fair
618	*Quercus agrifolia*	7	7	S	fair
619	*Quercus agrifolia*	24	24	XL	fair
620	*Quercus agrifolia*	12	12	M	fair
621	*Platanus racemosa*	28	28	XL	fair
622	*VSM*				
623	*VSM*				
624	*VSM*				
625	*VSM*				
626	*VSM*				
627	*Quercus agrifolia*	10	10	M	fair
628	*Platanus racemosa*	15	15	M	fair
629	*Platanus racemosa*	14	14	M	fair
630	*VSM*				
631	*VSM*				
632	*VSM*				
633	*Platanus racemosa*	34	34	XL	fair
634	*Platanus racemosa*	17	17	M	fair
635	*Platanus racemosa*	15	15	M	fair
636	*Quercus agrifolia*	4	4	S	fair
637	*VSM*				
638	*VSM*				
639	*VSM*				
640	*Quercus agrifolia*	27	27	XL	good
641	*Quercus agrifolia*	8	8	S	fair
642	*Quercus agrifolia*	6	6	S	fair

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
643	*Quercus agrifolia*	27/18	32	XL	good
644	*Quercus agrifolia*	17	17	M	good
645	*Quercus agrifolia*	26/16/16/19	39	XL	good
646	*Platanus racemosa*	11	11	M	fair
647	*Platanus racemosa*	28/15	32	XL	good
648	*Quercus agrifolia*	12	12	M	fair
649	*Quercus agrifolia*	10	10	M	fair
650	*Quercus agrifolia*	10/8	13	M	fair
651	*VSM*				
652	*Quercus agrifolia*	17	17	M	fair
653	*Quercus agrifolia*	26	26	XL	good
654	*VSM*				
655	*VSM*				
656	*Platanus racemosa*	28	28	XL	good
657	*Quercus agrifolia*	10	10	M	fair
658	*Quercus agrifolia*	4/5	6	S	fair
659	*Platanus racemosa*	32	32	XL	good
660	*Platanus racemosa*	9	9	M	fair
661	*Quercus agrifolia*	25	25	XL	fair
662	*Quercus agrifolia*	13	13	M	fair
663	*Quercus agrifolia*	16	16	M	fair
664	*Platanus racemosa*	33	33	XL	good
665	*Quercus agrifolia*	36	36	XL	fair
666	*Quercus agrifolia*	8	8	S	fair
667	*Quercus agrifolia*	9/8	12	M	fair
668	*Quercus agrifolia*	12/15	23	L	fair
669	*Platanus racemosa*	9	9	M	fair
670	*Platanus racemosa*	12	12	M	fair
671	*Platanus racemosa*	15	15	M	fair
672	*Platanus racemosa*	26	26	XL	good
673	*Quercus agrifolia*	12	12	M	fair
674	*Quercus agrifolia*	19	19	L	good
675	*Quercus agrifolia*	8	8	S	fair
676	*Quercus agrifolia*	20	20	L	good
677	*Quercus agrifolia*	13	13	M	good

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
678	*Quercus agrifolia*	4	4	S	fair
679	*Quercus agrifolia*	6	6	S	fair
680	*Quercus agrifolia*	8	8	S	fair
681	*Quercus agrifolia*	10	10	M	fair
682	*Quercus agrifolia*	12	12	M	fair
683	*Quercus agrifolia*	14/10	17	M	fair
684	*VSM*				
685	*VSM*				
686	*VSM*				
687	*Quercus agrifolia*	9	9	M	fair
688	*Quercus agrifolia*	10	10	M	fair
689	*Quercus agrifolia*	18	18	L	fair
690	*Quercus agrifolia*	15/12	19	L	fair
691	*Quercus agrifolia*	10	10	M	fair
692	*Quercus agrifolia*	9	9	M	fair
693	*Quercus agrifolia*	10/5	11	M	fair
694	*Quercus agrifolia*	12/15/13	23	L	good
695	*Quercus agrifolia*	6	6	S	fair
696	*Quercus agrifolia*	5	5	S	fair
697	*Juglans nigra*	Multi/6	6	S	fair
698	*Platanus racemosa*	11	11	M	fair
699	*Quercus agrifolia*	6	6	S	fair
700	*Quercus agrifolia*	15/9	17	M	fair
701	*Quercus agrifolia*	10	10	M	fair
702	*Quercus agrifolia*	8	8	S	fair
703	*Quercus agrifolia*	10/5	11	M	fair
704	*Quercus agrifolia*	15/7	17	M	fair
705	*Quercus agrifolia*	12	12	M	fair
706	*Quercus agrifolia*	17	17	M	good
707	*VSM*				
708	*Quercus agrifolia*	12	12	M	fair
709	*Quercus agrifolia*	6	6	S	fair
710	*Quercus agrifolia*	21/21/6/11	32	XL	good
711	*Quercus agrifolia*	25	25	XL	fair
1039	*Quercus agrifolia*	22	22	L	fair
1040	*VSM*				

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
1043	*VSM*				
1044	*VSM*				
1045	*VSM*				
1046	*Quercus agrifolia*	23	23	L	fair
1047	*VSM*				
1048	*VSM*				
1049	*VSM*				good
1050	*VSM*				good
1051	*VSM*				good
1052	*VSM*				poor
1053	*VSM*				good
1054	*VSM*				good
1055	*Quercus agrifolia*	11	11	M	fair
1056	*Quercus agrifolia*	21	21	L	
1057	*VSM*				fair
1058	*VSM*				good
1059	*VSM*				good
1060	*Quercus agrifolia*	17	17	M	good
1061	*VSM*				
1062	*Quercus agrifolia*	30	30	XL	fair
1063	*Platanus racemosa*	21	21	L	fair
1064	*VSM*				
1065	*VSM*				
1066	*Quercus agrifolia*	10	10	M	fair
1067	*Platanus racemosa*	24	24	L	fair
1068	*Quercus agrifolia*	31	31	XL	good
1069	*Quercus agrifolia*	24	24	L	poor
1070	*Quercus agrifolia*	17	17	M	
1071	*Quercus agrifolia*	18	18	L	fair
1072	*Quercus agrifolia*	11	11	M	good
1073	*VSM*				
1074	*Quercus agrifolia*	18	18	L	good
1075	*Quercus agrifolia*	47	47	XL	good
1076	*Quercus agrifolia*	13	13	M	good
1077	*Quercus agrifolia*	8	8	S	good
1078	*VSM*				

Tree #	Type	DBH (inches)	CRZ (ft. radius from tree trunk)	Size s/m/l/xl	Condition Category
1079	*Quercus agrifolia*	9	9	M	good
1080	*Quercus agrifolia*	11	11	M	good
1081	*VSM*				
1082	*VSM*				
1083	*Quercus agrifolia*	25	25	XL	good
1084	*Quercus agrifolia*	12/11	16	M	good
1085	*Quercus agrifolia*	27	27	XL	good
1086	*Quercus agrifolia*	9	9	M	good
1087	*VSM*				
1088	*Quercus agrifolia*	18	18	L	good
1089	*Quercus agrifolia*	19	19	L	good
1090	*Quercus agrifolia*	18	18	L	good
1091	*Quercus agrifolia*	14	14	M	good

Summary of Trees by Species	Quantity	Notes
Acer macrophyllum	2	
Alnus rhombifolia	3	
Calocedrus decurrens	1	
Cedrus deodara	1	
Eucalyptus camaldulenisis	6	
Eucalyptus ficifolia	4	
Eucalyptus sideroxylon	2	
Heteromeles arbutifolia	2	
Juglans nigra	6	
Juniperus sp.	1	
Ligustrum japonica	1	
Magnolia sp.	3	
Olea europeae	8	
Pinus canariensis	1	
Pinus radiata	7	
Pinus thunbergii	1	
Pittosporum undulatum	12	
Platanus racemosa	135	Quantity includes 12 Platanus racemosa trees located in directors block not in 2014 Museum Master Plan project area
Populus trichocarpa	3	
Pseudotsuga menziesii	1	
Quercus agrifolia	400	Quantity includes 58 Quercus agrifolia trees located in directors block not in 2014 Museum Master Plan project area
Salix lasiolepis	2	
Schinus molle	2	
Sequoia semperviren	15	
Umbellularia californica	3	
VSM	131	
Washingtonia filifera	1	
Washingtonia robusta	4	
Total	**758**	