6.17 BAYVIEW PARK

GENERAL DESCRIPTION AND LOCATION

Bayview Park is located in southeast San Francisco east of Candlestick Point State Park and Monster Park, formerly Candlestick Park (Figure 1-1). Primary public access is via Key Avenue on the western side of the park. Developed areas within the Natural Area are limited to paved trails. The 43.9-acre Natural Area at Bayview Park encompasses the entire hill except for the radio transmitters (Figure 6.17-1) and private land located on the northern and southern boundaries. Bayview Park is one of the more diverse Natural Areas with vegetation that includes grasslands, shrub, and tree-dominated areas, and a large number of sensitive plant species.

As a highly visible focal point within the City that supports a diverse array of habitats, Bayview Park has high natural resource and recreational values for the citizens of San Francisco that include: recreational trails; historic Works Project Administration (WPA) features; 360-degree views including views of the City, San Francisco Bay, San Bruno Mountain, and downtown San Francisco; diverse populations of sensitive plant species; suitable habitat for a variety of resident and migratory bird species, including raptors, as well as reptiles, mammals, and amphibians; extensive grasslands providing habitat for butterflies and other insects; and one of only a few populations in the world of the endangered mission blue butterfly (*Icaricia icarioides missionensis*).

GEOLOGY, HYDROLOGY, AND TRAILS

Soils at Bayview Park are classified as Barnabe-Candlestick complex, and are composed of very gravelly sandy loam and fine sandy loam (USDA 1991). Elevations at the park range from approximately 100 to 300 feet above mean sea level. Chert and sandstone rock outcrops occur throughout the park (Figure 6.17-2). Construction of the main paved path through the park has exposed bedrock in several locations. The history of excavation at Bayview Park is apparent from its benched slopes, old road grades, and massive soil slumps that indicate extensive historic disturbance. Even with this history, this hilltop park has a high degree of visual appeal, similar to other peaks in San Francisco.

The majority of public use at this park is confined to a looping paved path that starts and ends at the eastern end of Key Avenue. This road is used by San Francisco Recreation and Park Department (SFRPD) staff and operators of the radio tower facility for maintenance. Public vehicular access is restricted in the park by a metal gate at the end of Key Avenue. Several smaller designated and social trails exist in the grassland. Remnants of WPA stairs and retaining walls are still present along the roadway and interior of the park.

The northern slope of Bayview Park is eroding rapidly in three locations (Figure 6.17-2). The lowest area is approximately one-third of the way up the hill along Key Avenue from the main

entrance area. A berm and dense growth of French broom (*Genista monspessulana*) on the outside edge of the road cause water to run down the paved road until it reaches the low point and a break in the berm. Downslope from the break, a deep gully has formed in the slope debris. At a second location approximately halfway up the access road, the road is concentrating runoff from the uphill slope. Where runoff collects on the outside edge of the road, it is focused on the steep slope below the road and has created another large gully that is eroding back into the road. These two gullies, which are located below the road, have been partially filled with broken concrete, rock, and unconsolidated vegetation debris in an effort to reduce the rate of erosion.

The third location is on the uphill side of Key Avenue. It is an eroded landslide that is encroaching on the radio transmitter, access road, and purple needlegrass prairie near the top of the hill. The landslide appears to have started at the base of the slope near the south end of an old rock quarry now seen as an escarpment on the south side of the paved trail approximately one-third of the way up the paved trail. The disruption of the ground surface above the quarry faces, and the remains of stockpiles around the south end of the quarry floor, indicate that the topsoil and sandy subsoil were stripped from the rock surface and stored for future use. Fine sand and smaller particles ("fines") that are byproducts of rock crushing also would have been stored in this mined-out area, probably for use as backfill. Fines would slow the rate at which rainwater and runoff infiltrated the remains of the stockpiles, eventually leading to a saturated soil condition (when the intensity and duration of rainfall were high enough) not only of the stockpiles, but also of the hillsides against which they were banked. A saturated soil mass can slip under its own weight, even on a very shallow slope (which these quarried faces are not), creating a nick point from which erosion can work uphill. The landslide and erosion scar are quite extensive, with multiple small gullies, many of which appear stable because they are heavily vegetated. The main gully is of the most concern because it is actively eroding the grasslands near the summit of the hill. This feature is approximately 100 feet long and 40 feet wide at the widest point. The top of the gully appears to be an eroded slide plane that is approximately 15 feet deep, with side walls ranging from 8 to 12 feet high. A recent soil survey indicates that bedrock lies more than 10 feet below the soil surface in the gully, suggesting that the soil slip will continue up the hill. A number of short-term solutions have been installed to slow the movement of water and soil in this slump, including brush boxes, vegetative fill, and sheet plastic laid over the top edge of the escarpment; however, these solutions have not been effective. The magnitude of the slip requires a longer-term constructed solution.

VEGETATION

The vegetation of Bayview Park was classified into 19 series (Table 6.17-1; Figure 6.17-3). These series are within six sub-formations: approximately 25 percent of the area is grassland; 39 percent is forest; 23 percent is scrub; 2 percent is mosaic; less than 1 percent is wetland; and 8 percent is classified as "other" (developed, bare ground, rock outcroppings, restoration areas). Seven of these series are dominated by native species. Approximately 1.28 acres were classified as active restoration sites.

Forest

Two forest series were mapped at Bayview Park. The blue gum series is the more abundant of the two and accounts for 17.11 acres. Collection of point data within the understory of the eucalyptus forest at Bayview Park revealed that 28 of 58 plant species observed were native; however, native cover in the understory was only 24 percent. A very small patch of native Coast live oak forest (0.05 acre) is located in the southeast portion of the park; however, stands of oaks occur throughout the Natural Area in the understory of eucalyptus trees and scattered through the northern grassland.

Scrub

Five scrub series were mapped at Bayview Park. Of these five, French broom scrub (8.06 acres) and poison oak scrub (1.40 acres) account for 95 percent of all scrub habitat in the park. The remaining scrub series are generally of limited size and distribution. A quarter acre of holly-leaf cherry scrub is noteworthy because it is the only occurrence of this series within the Natural Areas System. The cherry scrub is found on the very top of the hill; however, cherry trees are found throughout the Natural Area in eucalyptus understory and other moist locations.

Grassland

Six grassland series were mapped at Bayview Park and cover almost 11 acres. The majority of the acreage was mapped as wild oat grassland (5.80 acres). Purple needlegrass prairie (3.08 acres), rattlesnake grassland (1.25 acres), or wild oat/rattlesnake grassland (0.45 acres) can also be found in relatively large areas. The purple needlegrass at Bayview Park is the second-largest occurrence of this native-dominated series in the Natural Areas System, with the largest at McLaren Park and the third largest at Twin Peaks. Point sampling within the grasslands at Bayview Park illustrated the diversity of these habitats. Of the 102 plant species observed, 63 were native; however, when evaluating the data by cover, invasive species are out-competing the natives by nearly 2:1 (59 percent).

Mosaic and Wetland

One mosaic series consisting of 1.01 acre of wild oat/French broom mosaic was found in two areas within the park. One wetland series consisting of approximately 0.03 acres of native rush meadow wetlands (within a wild oat grassland) was mapped within Bayview Park.

Other

Four series were mapped as “other” habitats at Bayview Park: bare ground, developed, ornamental vegetation and rock outcrops. Developed areas account for the largest coverage within this series, 2.34 acres, and include all of the roads, view points, and other human structures. Bare ground (0.11 acres) is often the result of human use that has removed vegetation.

The ornamental vegetation consists of 0.92 acres of landscape plants. The rock outcrops (0.06 acres) are mostly the exposed outcrop at the summit of Bayview Park.

Sensitive Plant Species

Of the 68 species of sensitive plants discussed in this plan overall, 19 of those can be found on Bayview Park (Table 6.17-2; Figure 6.17-4). This is perhaps the most diverse assemblage of sensitive plants within the Natural Areas System. Of these, San Francisco collinsia (*Collinsia multicolor*), a species on California Native Plant Society List 1B, is the most sensitive. This collinsia is numerous at Bayview Park, with two relatively large populations and scattered individuals (Figure 6.17-4). Grassland gilia (*Gilia clivorum*) has been historically reported from Bayview Park but not recently observed. Historically, three plant species of statewide conservation concern including coast rock cress (*Arabis blepharophylla*), San Francisco owl's clover (*Triphysaria floribunda*), and Diablo helianthella (*Helianthella castanea*) were found at Bayview Park (Wood 1996); however, none of these species have been observed recently.

The remainder of the sensitive species present at Bayview Park are considered locally significant. Scouler's large campion (*Silene scouleri* spp. *grandis*), a population of farewell-to-spring (*Clarkia rubicunda*), and woodland star (*Lithophragma affine*) all occur within the purple needlegrass prairie on the northern slope of Bayview Park (Figure 6.17-4). A second population of farewell-to-spring can be found in association with San Francisco collinsia, also in prairie grasslands, on the southwestern slope. Johnny-jump-up (*Viola pedunculata*) is designated as sensitive because it is a larval host plant for the callippe silverspot butterfly (*Speyeria callippe callippe*), a federally endangered species. Johnny-jump-up can be found in association with grasslands in two locations at Bayview Park. A single population of California fescue (*Festuca californica*) persists in the extreme north end of the Natural Area. A small population of groundsel (*Senecio aronicoides*) can be found at the edge of the grassland near the turn in Key Avenue. Eleven other species are reported and presumably still occur at Bayview Park. The California Natural Diversity Data Base (CNDDB) does not report the occurrence of any sensitive plant species at Bayview Park (CNDDB 2005).

Invasive Plant Species

Seven vegetation series dominated by invasive species account for more than 34.5 acres of the land cover at Bayview Park. Blue gum forest and French broom scrub cover the largest areas of ground: 17.11 and 8.06 acres, respectively. Wild oat grassland (5.8 acres) and rattlesnake grassland (1.25 acres) are the next most frequent series dominated by invasive species.

WILDLIFE

Birds

The complex grassland, scrub, and forest habitat of Bayview Park provide suitable foraging, nesting, and roosting habitat for a variety of species. The grassland and scrub habitats provide foraging habitat for raptors while the forests provide potential nesting habitat for these species. Habitat for smaller birds (passerines) is available in the scrub and mosaic habitats throughout the park. Species such as western meadowlark (*Sturnella neglecta*), lazuli bunting (*Passerina amoena*), white-crowned sparrow (*Zonotrichia leucophrys*), and Bewick's wren (*Thryomanes bewickii*) are typical of species expected to occur within the grassland and scrub habitats of Bayview Park. However, the invasive nature of much of this scrub habitat makes it less than optimum for native birds. The monotypic blue gum forests in Bayview Park do not support a variety of birds. The lack of structure (shrubs and small trees) in the forest understory reduces the quality of habitat for birds.

Sensitive Bird Species and Important Bird Habitat

Of the bird species designated as sensitive for this project, 16 occur on Bayview Park (Table 6.17-2). Five of these species breed within this Natural Area. American goldfinch (*Carduelis tristis*) and lesser goldfinch (*Carduelis psaltria*) both nest in the scrub areas and forage in grasslands. Pygmy nuthatch (*Sitta pygmaea*), red-tailed hawk (*Buteo jamaicensis*), and red-shouldered hawk (*Buteo lineatus*) likely nest in the blue gum forest that comprises most of the Natural Area acreage. Wrentits (*Chamaea fasciata*) are reported from the scrub habitats on the northern slopes. EIP biologists observed dark-eyed juncos (*Junco hyemalis*) within the Natural Area during the course of reptile and amphibian surveys. The CNDDB does not report the occurrence of any special-status species of birds at Bayview Park (CNDDB 2005).

Ten areas of important bird habitat have been designated at Bayview Park (Figure 6.17-4). They occur across the Natural Area from the north-facing slope above Key Avenue to the southeastern tip of Bayview Park. The scrub and grassland slopes on the north-facing side of the hill provide important habitat for species such as the two goldfinches, wrentit, lazuli bunting, Bewick's wren, and western scrub-jay (*Aphelocoma californica*). The grove of willows in the middle of the slope provide habitat for neotropical migrants including Wilson's warbler (*Wilsonia pusilla*) and Hutton's vireo (*Vireo huttoni*). The holly-leaf cherry and poison oak scrub habitats on the south side of the ridge provide habitat for resident and migrating hummingbirds. The grasslands adjacent to this provide habitat for lazuli bunting. Other important habitats along this portion of the ridge provide areas for red-tailed hawks and great horned owl (*Bubo virginianus*). Migrating birds naturally move through vegetative habitats and will follow them as far as possible before flying over water or the City, as is the case here. This makes the southeastern tip of Bayview Park important habitat as birds moving north arrive there first and leave from there when flying south.

Mammals

Surveys of small mammals were conducted at Bayview Park in summer 2000 (Paquin and Reading 2000). An array of approximately 40 live traps was placed in grassland and woodland habitats at dusk and serviced the next morning. This pattern was repeated for four consecutive nights (160 trap nights). Trapping resulted in the capture of 11 harvest mice (*Reithrondontomys megalotis*) and one pinion mouse (*Peromyscus truei*). The pinion mouse was captured in the small area of coast live oak woodland in the southern edge of the park. Although relatively widespread and common throughout California, this is the first time since 1977 that this species has been reported from San Francisco County (Paquin and Reading 2000). Typical habitat for this species includes most shrub and forested habitats, especially rocky areas with brushy thickets (Brylski no date). Other small mammals, such as California meadow vole (*Microtus californicus*) and pocket gophers (*Thomomys bottae*), are also likely to occur here. Larger mammals found in the Bayview Park area such as raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*) and Virginia opossum (*Didelphis virginiana*) are typical of urbanized parks in general. The trapping effort was not focused on these species.

Reptiles/Amphibians

Five surveys for reptiles and amphibians, totaling approximately 66 hours of field effort, were conducted at Bayview Park in spring 2000 (Paquin and Reading 2000). These surveys, conducted by walking transects, resulted in the observation of seven species of reptiles and amphibians. Species observed included Pacific ring-neck snake (*Diadophis punctatus*), Pacific gopher snake (*Pituophis melanoleucus*), California alligator lizard (*Elgaria multicarinata*), northwestern fence lizard (*Sceloporus occidentalis*), arboreal salamander (*Aneides lugubris*), California slender salamander (*Batrachoseps attenuatus*), and yellow-eyed salamander (*Ensatina eschscholtzii*). California slender salamander and northwestern fence lizard were also observed (EIP field visit, May 3, 1999). No sensitive species of reptiles and amphibians are reported in the CNDDB for Bayview Park (CNDDB 2005).

Invertebrates

Sensitive Invertebrate Species

At least three special-status species of butterflies potentially occur within the City of San Francisco: mission blue butterfly, San Bruno elfin butterfly (*Incisalia mossii bayensis*), and bay checkerspot butterfly (*Euphydryas editha bayensis*). Mission blue butterflies were observed on Bayview Park on June 26, 2001, by SFRPD staff and are presumed to exist there still. Larval food plants for silverspot (*Viola*) also exist in Bayview Park. The proximity of Bayview Park to existing populations of butterflies in San Bruno Mountain make re-establishment of these species a real possibility.

MANAGEMENT AREAS

Management Areas (MAs) at Bayview Park fall into three general categories: grasslands, scrub, and the forested areas (Figure 6.17-5). Management Areas MA-1a through MA-1h include most of the native grassland and scrub habitats that support the highest numbers of sensitive species. Surrounding most of the MA-1 areas are MA-2 areas (MA-2a to MA-2g) which may also contain sensitive species and habitats, but which provide a buffer between sensitive areas and the urban forests and invasive scrub in MA-3 areas. Most of the active restoration at Bayview Park will occur within the MA-1 and MA-2 areas and these are the places where the public is most likely to see changes in the park landscape, such as tree and shrub removal and native planting. At Bayview Park, the MA-3 areas are comprised of invasive scrub series and urban forest. The following text presents issues and recommended management actions by Management Area.

ISSUES AND RECOMMENDATIONS

Several conservation and recreation-related issues have been identified at Bayview Park. Recommendations developed for each of these issues will guide restoration, enhancement, and maintenance work. In the following discussion, system-wide issues and recommendations (GR-1 for example; see Chapter 5) that apply to the entire Natural Area at Bayview Park are presented first within each topical area, followed by site-specific issues and recommendations. Site-specific recommendations are keyed to the Management Area in which they should occur.

Site Improvements – Implementation of management recommendations at Bayview Park would not change significantly the overall look of the park and would result in:

- enhancement of native species including sensitive plants and native grasslands;
- increased coast live oak forest;
- thinning of sapling and mature eucalyptus and replacement with higher wildlife value native vegetation;
- improved wildlife habitat for a diversity of species, including a number of bird species of local concern;
- creation of a seasonal wetland;
- improved educational opportunities;
- beautification of park entrance points with designed native plant gardens;
- improved access on designated trails and potential new trails linking nearby neighborhoods;
- creation and implementation of a comprehensive erosion control plan to address the rapidly eroding northern slope; and
- establishment of a stable boundary between eucalyptus and grassland habitat.

Overall, implementation of the following recommendations could increase species richness, ecosystem productivity and sensitive plant and animal populations that use the native grasslands

and coastal scrub habitats at Bayview Park. Ultimately, the grassland and scrub habitats would be similar to those on the eastern slopes of San Bruno Mountain.

Vegetation

Issues relating to vegetation management at Bayview Park focus on the protection of sensitive species and habitats, typically through the control of invasive plants (GR-1) and management of sensitive species and vegetation series of limited distribution (GR-2). Grassland management is also necessary to ensure that the current grasslands are not substantially altered (GR-3). Issues relating to the general safety of visitors and surrounding homes, fire hazards posed by vegetation and trees, and illicit activities must be considered during management of the Natural Areas (GR-13). Management of the urban forests within the MA-3 areas of Bayview Park will follow the general urban forest management practices (GR-15). In addition to these general recommendations, the following site-specific issues should be addressed.

Issue VP-1: Native grasslands, rare habitat types (e.g., purple needlegrass prairie, holly-leafed cherry scrub) and populations of sensitive plant species are at risk of diminishing or becoming extinct at Bayview Park because of habitat loss and invasive species. Invasive vegetation such as blue gum eucalyptus (*Eucalyptus globulus*), European grasslands, and sweet fennel (*Foeniculum vulgare*), etc., occurs throughout Bayview Park and threatens the long-term survival of its grassland and scrub habitats, as well as sensitive species that persist there.

> ***Recommendation VP-1a*:** To help preserve, enhance, and expand native habitats, reduce and contain woody and herbaceous invasive plants such as Bermuda buttercup (*Oxalis pes-caprae)*, French broom, sweet fennel, European grasses, and pampas grass (*Cortaderia selloana*) in all MA-1 and MA-2 areas (Figure 6.17-5). In order to preserve important grasslands, consider thinning some native shrubs and small trees (Toyon (*Heteromeles arbutifolia*)). Control recruitment of invasive tree species within all MA-1 and MA-2 areas to help preserve these habitats. Within the MA-3 areas, some invasive plants that are important nectar, seed, and larval habitat for wildlife may remain in place; however, they shall be monitored to prevent encroachment into sensitive habitats and managed accordingly (MA-3a and MA-3b).
>
> ***Recommendation VP-1b*:** In order to enhance the sensitive species habitat that persists in the urban forest understory and at the forest-grassland ecotone, invasive blue gum eucalyptus trees will be removed in select areas. Coastal scrub and native grassland communities require additional light to reach the forest floor in order to persist. Approximately 511 of an overall 6,000 trees on Bayview Park would be removed from in MA-1 and MA-2 areas (Appendix F). Not all trees in MA-1 and MA-2 areas will be removed. In fact, no tree removal will occur in MA-1a, MA-1e, MA-1h, MA-2c, and MA-2f. Even in areas where removal is planned, some scattered large individuals will remain in order to minimize large-scale disturbance and disruption to wildlife and to promote a gradual conversion to grassland and scrub habitats. In areas where trees are

planned for removal, an average of 50 to 100 square feet of basal area per acre will be retained in MA-1 and MA-2 areas respectively.[1] Eucalyptus seedlings and saplings will not be allowed to establish in any MA-1 or MA-2 area. The short- and long-term impacts of tree removal are discussed in Appendix F. Below is a description of where tree removal would occur (see also Figure 6.17-5):

- Remove approximately 5 eucalyptus trees from MA-1b.
- Remove approximately 30 eucalyptus trees from MA-1c.
- Remove approximately 40 large and 100 small eucalyptus trees, those between 3 and 12 inches in diameter from MA-1d.
- Remove approximately 10 eucalyptus trees from MA-1f.
- Remove approximately 70 eucalyptus from MA-2a.
- Remove approximately 40 large and 60 small eucalyptus from MA-2b.
- Remove 1 eucalyptus from MA-2d.
- Remove approximately 50 large and 100 small eucalyptus trees encroaching on grassland from MA-2e.
- Remove approximately 5 pine trees on steep slopes from MA-2g.

***Recommendation VP-1c*:** Protection and maintenance of existing native habitats will help maintain biodiversity and ecosystem richness. Therefore, in all MA-1 areas and in MA-2f, maintain and enhance existing native grassland. Most of the MA-2 areas (and MA-3b) are mosaics of trees (oaks, willows, cherry tree scrub), native grassland, and riparian or coastal scrub habitats; these are important habitats that should be maintained and enhanced (MA-2a-2c, MA-2e, and MA-2g). Using diversity, cover, and density targets generated from reference sites, within and around San Francisco, plant native grassland and shrub species (Appendix B). The understory of urban forests should be diversified and enhanced with plants specifically chosen for their wildlife values (MA-3a) and as described in urban forest management recommendations (GR-15). At the Natural Area entrance, enhance existing landscaping with showy wildflowers and native shrubs.

***Recommendation VP-1d*:** To ensure that native plants remain diverse and well-established at the Bayview Park Natural Area, consider augmenting existing sensitive plant populations as indicated in Table 6.17-2.

***Recommendation VP-1e*:** In order to reduce the potential for local extinction of sensitive species in San Francisco, consider reintroduction of the following sensitive species: Johnny-tuck (MA-1d, MA-1f, MA-1g), purple owl's clover (*Castilleja exserta* ssp. *exserta*) (MA-1g, MA-1d and MA-2g), grassland gilia (MA-1g), California saxifrage

[1] For comparison, 25 square feet of basal area per acre could equate to 11 trees with diameters of 20 inches, or 45 trees with diameters of 10 inches, in a single acre.

(*Saxifraga californica*) (MA-1d, MA-1g, MA-2b), fiesta flower (*Pholistoma auritum* var. *auritum*) (MA-1c, MA-1g, MA-2b), leafy daisy (*Erigeron foliosus*) (MA-1g), blue violet (*Viola adunca*) (MA-1g), and star lily (*Zigadenus fremontii*) (MA-1g).

Wildlife

Wildlife issues at Bayview Park focus on three main topics: habitat, food sources, and shelter. Vegetation management during the breeding season can impact nesting birds (GR-4), however, vegetation management also can provide materials to create artificial habitat for ground-dwelling birds, small mammals, and reptiles (GR-9). Artificial nesting structures may benefit some species, especially cavity nesters such as titmice, chickadees, and woodpeckers (GR-6). Installation of plants required by California's native butterflies can help increase these populations (GR-10). Finally, reduction in predation pressures will benefit all animals within the Natural Area (GR-7). In addition to these general recommendations, the following site-specific issues should be addressed.

Birds

Issue VP-2: The understory of the blue gum forest at Bayview Park is relatively sparse and poor-quality bird habitat. Smaller birds need food sources, shelter, and nesting sites. These resources are not in abundance within the blue gum forest understory at Bayview Park.

> ***Recommendation VP-2a:*** Some of these areas have been subject to removal of invasive plants, an activity that should continue. In order to increase productive edge habitat, foraging areas, and shrubby cover that is necessary for small songbirds, install coast live oak seedlings and an assemblage of other native plants such as toyon, California coffeeberry (*Rahmnus californica*), oceanspray (*Holodiscus discolor*), and snowberry (*Symphoricarpos albus* var. *laevigatus*) in gaps and openings. This activity should focus on the areas of blue gum forest in MA-2a, MA-2b, MA-2e, and MA-3a (see also GR-15).

Issue VP-3: Water sources are limited and temporary at Bayview Park. The temporal nature of these sources means that birds are forced into nearby nonsuitable habitat in search of water.

> ***Recommendation VP-3a:*** If capital funds are made available, construct a small berm to create a seasonal wetland and detention basin as described in Recommendation VP-8c (MA-2c and MA-3b). This structure would benefit birds and amphibians because seasonal wetland vegetation could be planted, and, potentially, the wetland could be colonized by birds and amphibians not currently found at the site. If the seasonal wetland holds water throughout the normal drying period in late summer, it should be drained in early fall in order to remove bullfrogs that would prey on smaller animals using the water sources.

Mammals

Issue VP-4: The first record of a pinion mouse within San Francisco since 1977 was generated during trapping conducted at Bayview Park. This species is found only in an extremely small area of coast live oak forest (0.05 acres) in the southeastern portion of the park.

> ***Recommendation VP-4a:*** In an effort to preserve this species, habitat for this species in MA-1e should maintained and improved. Thickets of native vegetation shall be allowed to develop below the oaks (e.g., toyon, California coffeeberry, oceanspray, snowberry, and native grasses). Maintenance of tree cover will help create habitat preferred by the pinion mouse.

Invertebrates

Issue VP-5: Mission blue butterflies are a federally endangered species that is known to occur in Bayview Park. Silver bush lupine (*Lupinus albifrons* var. *collinus*) is one of the preferred host plants for this species. Silver bush lupine is not abundant in Bayview Park and this limits potential butterfly habitat.

> ***Recommendation VP-5a:*** To improve habitat for mission blue butterflies, augment existing silver bush lupine populations during routine restoration work in grasslands (MA-1e, MA-2d to MA-2g).

Soils, Erosion, and Public Use

Most of the smaller erosion issues at Bayview Park all relate to the trail system and public use. A network of roads and formal and social trails winds through all Management Areas at Bayview Park (Figure 6.17-2). This plan proposes to improve and maintain 6,575 linear feet of trails, retain an additional 481 linear feet of unimproved trails, and close 1,439 feet of social trails in this Natural Area. Most of the trails in this Natural Area are paved and in generally good condition. The issue of erosion and habitat impacts related to social trails that may develop is addressed through implementation of GR-11 and GR-12. Interpretive signs regarding the ecosystem of Bayview Park should also be considered (GR-14).

Issue VP-6: The occasional use of the Natural Area by people riding off-road motorcycles continues to occur. This activity damages sensitive habitats and species. While such use may be infrequent, the damage caused by that a single trip could significantly impact plants and animals on the brink of survival at Bayview Park.

> ***Recommendation VP-6a*:** To protect the sensitive resources of the Natural Area, signs and temporary barriers should be installed along the roadway. Increased enforcement of these regulations should help minimize disturbance. However, if these solutions are ineffective, installation of a permanent barrier along the roadway may be required (MA-1c, MA-1d and MA-1g).

Issue VP-7: Access to, and trails within the Natural Area, are limited.

***Recommendation VP-7a*:** Consider construction of a pedestrian trail through MA-1d that would connect to the historic WPA trail. It may be feasible to simply clean and repair the WPA trail to meet access needs without causing problems for the sensitive species and habitats in the area.

Recommendation VP-7b: Consider development of a new entryway on Bayview Park's southern side that would connect residents from the new housing units south of the park to the hill itself.

Issue VP-8: Erosion of the slope on the downhill side of Key Avenue is threatening the stability of the access road. This is primarily caused by the road focusing runoff in one location. A housing project is proposed for the property adjacent to Bayview Park. The developer of this project has proposed to help prevent the water from Key Avenue from running directly down slope and causing erosion. A small retaining wall may be required to prevent the access road from washing away. A French drain would solve the erosion problem if properly designed and constructed.[2]

Recommendation VP-8a: If funds are made available, remove the berm on the downhill side of the road entirely and regrade the entire road to an outsloped configuration when the berm is removed (MA-2c and MA-2d). On an outsloped road, the uphill side is higher than the downhill side. When properly constructed, an outsloped road would not present a hydrologic barrier and would allow uniform flow of runoff from the hillside across the road and into the vegetated slope below. This eliminates ponding (important for slope stability) and reduces the likelihood of gullying in and downhill of the road. However, this action would involve removal of the existing paved surface and extensive roadwork to be most effective. An alternative would be to construct water bars across the road at intervals. These would be trenched into the substrate or built up on top of the road. They would run across the road diagonally and the downslope end would be cut through the berm. A very compacted brush pile should be staked just downslope of the water bar. This would slow water as it leaves the water bar and minimize downslope erosion. Properly installed water bars do not preclude vehicle access.

Recommendation VP-8b: To help stabilize the slope below the roads, the material in the major downslope gullies should be removed and replaced with brush that is highly compacted and staked in place (MA-2c, MA-2b, and MA-3a). The major downslope gullies have been partially filled with bits of broken concrete, small boulders, and vegetative debris. This debris does not appear to be slowing water enough to halt downslope erosion or retaining enough soil to build up a plant base to stabilize the

[2] A French drain, invented by Henry French of Concord, Massachusetts, in the 1850s, is a tile or metal pipe, perforated along the bottom, buried in a perimeter trench. It works by hydrostatic pressure and is less prone to clogging than ordinary perforated tile drains.

upslope end of the gully. Compaction would be best accomplished by a backhoe bucket or other similar mechanical means. Once this is done, removal of the uphill edges of the gullies will make the slopes more gradual and decrease erosion.

Recommendation VP-8c: A small berm, no more than 3 feet high (to allow for 2 feet of water storage), shall be built south of the road at the base of the main soil slip; a seasonal wetland and detention basin would be created behind this berm (MA-2c and MA-3b). Any structure 5 feet high or greater would require an impoundment permit from the State Water Resources Board. The concept here is to capture water and allow it to percolate rather than run off downslope. The change in elevation from the downhill side to the uphill side of the proposed pond is approximately 2.5 feet. At roughly 70 feet long on each axis, this basin would retain approximately 0.2 acre-feet of water, or approximately 65,000 gallons (Figure 6.17-6). To maximize edge habitat available at different water levels, material for the berm may come from either the existing large berm at the extreme downhill portion of the area, or from the interior of the basin. Material from within the basin would be excavated in such a way that troughs are created that run perpendicular to the berm. There would be a maximum of 1 foot of water over the tops of these at maximum storage (Figure 6.17-7). Areas affected by construction of this structure would be revegetated with willows (cut from the local populations) and other seasonal wetland plants in a suitable manner to retain the soils, as specified by a wetland biologist.

Not all rainfall that lands on the watershed will reach the detention basin, but planning for such an event will incorporate some excess storage capacity as a buffer. On the day after an approximate 6-hour, 2-inch storm event, evidence of surface runoff was visible on the road, but not within the area proposed for the detention basin (EIP field visit, November 13, 2001). The 6-hour, 100-year interval storm would drop approximately 2.46 inches of rain on this portion of San Francisco (ABAG 1981). The extent of the watershed in this area is estimated at approximately 100,000 square feet (2.3 acres) from the aerial photos. Therefore, if all the water from the 100-year storm reached the detention basin, it would account for approximately 0.19 acre-feet of water, or approximately the design capacity of the basin.

SFRPD would take auger samples within the basin to determine the depth of material above the bedrock substrate. It is expected that Franciscan bedrock is located at some shallow depth below the existing layer of sand. Information about the depth of the sand will generate information about how effective percolation will be. The soil covering the bedrock holds water in the spaces between its grains and thereby meters infiltration. This allows extra time for the percolated water to find its way to, and through, the fracture system in the underlying bedrock. Rapid percolation time in the sandy soils is not a problem if the bedrock fractures are wide and well interconnected, but that relationship has yet to be determined. If there is limited fracturing of the bedrock, the build-up of water in the soil can lead to soil slumps and slides. Presumably this is not a problem at

Bayview Park, especially given the history of quarrying that typically involved large amounts of explosives to fracture the bedrock. Also, the greater the soil depth, the better the root mat that can develop to hold the floor of the pond together.

Issue VP-9: The large gully that is eroding headward through the grassland near the summit is removing purple needlegrass prairie (an important native grassland series), and threatens the road and the radio transmitter at the summit of Bayview Park. To date, measures to control the continued erosion at this location have not been successful.

Recommendation VP-9a: Create a detailed and complete erosion control plan prior to starting work on any segment of this problem (MA-1g and MA-3b). This would allow coordinated and complete action in the numerous areas necessary to solve this problem. One soft-engineering approach is outlined below, which will help control erosion and stabilize the soil slip. This conceptual approach does not constitute a final plan. Other solutions may be possible; other approaches should favor bio-engineered or soft solutions. Specific site measurements, planting strategies, and installation conditions shall be used to finalize the plan.

- Install a minimum of two check-dams within the upper portion of the gully (Figure 6.17-8). The lower check-dam would be at the point where the gully opens up into the larger ravine, approximately 100 feet down from the upper edge. The upper check-dam would be located where the gully starts to widen. The top of the lower structure must be at least equal in elevation to the bottom of the upper structure.
- Create soil berms and troughs between these two structures (Figure 6.17-9). These would be parallel to the check dams, no more that 1 foot above existing grade, and built with soil from the trough adjacent to create the berm. Brush would be densely packed and staked into the troughs to increase sedimentation.
- Remove soil from the upper edges of the gully (sides and top) far enough back into the undisturbed areas to create a 1:1 slope (horizontal:vertical) (Figure 6.17-8). Ideally 2:1 slopes would be created, but this would cause removal of significant vegetation. Move the pile of slump material from below the upper gully lip to the side slopes. This material would be installed at a 2:1 slope to help reduce the amount of lip excavation that actually has to occur.
- Install a staked brush pile or brush box immediately below the upper edge of the gully (Figure 6.17-9) to help slow water moving down this face and trap sediments.
- Install one or two staked brush bundles in the vegetated swale leading into the gully from the direction of the radio tower. These would be partially buried to help slow inflow to the gully (Figure 6.17-8).
- Install rice straw bales along all edges of the gully (Figure 6.17-8). These would be buried at least 3 inches into the soil and staked in place (Figure 6.17-9). Be sure that each bale is completely in contact with the ground surface and the end of the adjacent bales. This would filter water that is entering the gully and minimize the formation of new nick points where the gully could expand in a new direction.

- Hand broadcast the entire area with the appropriate native grass seed once construction is complete and before the fall rains.

Issue VP-10: Habitat for the federally endangered mission blue butterfly is a sensitive habitat in Bayview Park. Off-leash and off-trail activities can degrade this habitat and harm host plants. On-trail use with on-leash dogs would greatly reduce this impact; however, leash laws are currently rarely enforced.

Recommendation VP-10a: There are 1.3 acres of mission blue butterfly habitat at Bayview Park located next to or surrounding trails. If park users (and dogs) stay on trails, no further access restrictions or fencing would be required. However, if lack of enforcement and compliance with leash laws continues and/or damage to sensitive habitat areas is observed, SFRPD should consider restricting access to these sensitive habitat areas, as described in the dog policy, including physical barriers. Permanent physical barriers are viewed as a last resort to be used only after signage and other soft solutions have been shown to be ineffective. If fences are installed, public access would still be allowed on designated trails; however, low trailside fencing would be installed to discourage people and dogs from drifting off-trail (see Appendix H for examples of low rustic fencing).

Table 6.17-1. Vegetation series mapped at Bayview Park.

	Vegetation Series	Total Acreage
Forest	coast live oak forest*	0.05
	blue gum forest	17.11
	Subtotal	**17.16**
Scrub	coyote brush scrub*	0.13
	holly-leaf cherry scrub*	0.25
	poison oak scrub*	1.40
	willow scrub*	0.12
	French broom scrub	8.06
	Subtotal	**9.96**
Mosaic	wild oat/French broom mosaic	**1.01**
Grassland	hairgrass grassland	0.05
	Italian ryegrass grassland	0.29
	rattlesnake grassland	1.25
	wild oat grassland	5.80
	wild oat/rattlesnake grassland	0.45
	purple needlegrass prairie*	3.08
	Subtotal	**10.93**
Wetland	rush meadow*	**0.03**
Other	bare ground	0.11
	restoration area*	1.28
	developed	2.34
	ornamental	0.92
	rock outrcop	0.06
	Subtotal	**4.71**
Grand Total		**43.81**

* Indicates vegetation type is dominated by native species.

Table 6.17-2. Sensitive species presently or historically known to occur at Bayview Park.

Species	Common Name	Status Federal, State, CNPS	Occurrence Status
ANIMALS			
Icaricia icarioides missionensis	Mission Blue Butterfly	FE	Observed in 2001.
Carduelis tristis	American Goldfinch	SLC	Presently breeds
Falco sparverius	American Kestrel	SLC	Presenty occurs
Junco hyemalis	Dark-eyed Junco	-	Presenty occurs
Vireo huttoni	Hutton's Vireo	SLC	Presenty occurs
Carduelis psaltria	Lesser Goldfinch	SLC	Presently breeds
Vermivora celata	Orange-crowned Warbler	SLC	Presenty occurs
Empidonax difficilis	Pacific-slope Flycatcher	SLC	Presenty occurs
Carpodacus purpureus	Purple Finch	SLC	Presenty occurs
Sitta pygmaea	Pygmy Nuthatch	SLC	Presently breeds
Sitta canadensis	Red-breasted Nuthatch	SLC	Winter resident
Buteo lineatus	Red-shouldered Hawk	SLC	Presently breeds
Buteo jamaicensis	Red-tailed Hawk	SLC	Presently breeds
Sayornis saya	Say's Phoebe	SLC	Winter resident
Tachycineta bicolor	Tree Swallow	SLC	Presenty occurs
Tachycineta thalassina	Violet-green Swallow	SLC	Presenty occurs
Chamaea fasciata	Wrentit	SLC	Presenty occurs
Wilsonia pusilla	Wilson's Warbler	SLC	Presenty occurs
PLANTS			
Amsinckia menziesii	Common Fiddleneck	LS	Presently occurs
Aster radulinus	Broadleaf Aster	LS	Presently occurs
Blennosperma nanum	Common Stickyseed	LS	Presently occurs
Clarkia rubicunda	Farewell-to-spring	-	Presently occurs
Collinsia multicolor	San Francisco Collinsia	CNPS List 1B	Presently occurs
Delphinium californicum	California Larkspur	LS	Presently occurst
Delphinium decorum	Coast Larkspur	LS	Presently occurs (1 population - 56 individuals)
Elymus multisetus	Big Squirrel Tail	LS	Presently occurs
Festuca californica	California Fescue	LS	Presently occurs
Gallium porrigens	Climbing Bedstraw	LS	Presently occurs
Gilia clivorum	Gilia	LS	Presenty occurs

Table 6.17-2. Sensitive species presently or historically known to occur at Bayview Park.

Species	Common Name	Status Federal, State, CNPS	Occurrence Status
Lithophragma heterophylla	Woodland Star	LS	Presently occurs
Prunus emarginata	Bitter Cherry	LS	Presently occurs
Prunus ilicifolia	Holly-leaved Cherry	LS	Presently occurs
Prunus virginiana var. demissa	Western Choke Cherry	LS	Presently occurs
Ribes menziessi	Canyon Gooseberry	LS	Presently occurs
Rosa gymnocarpa	Wood Rose	LS	Presently occurs
Saxifraga californica	California saxifrage	LS	Presently occurs
Senecio aronicoides	Groundsel	LS	Presently occurs
Silene scouleri ssp. *grandis*	Scouler's Large Campion	LS	Presently occurs
Viola pedunculata	Johnny-Jump-Up	-	Presently occurs

Status Key:

Federal Status

FE Endangered. Species in danger of extinction throughout all or significant portion of its range.

FT Threatened. Species likely to become endangered within foreseeable future throughout all or a significant portion of its range.

FPE Proposed for listing as endangered.

FC Candidate for listing as endangered. Candidate information now available indicates that listing may be appropriate with supporting data currently on file.

FSC Species of Concern. Former Category 2 Candidate for listing as endangered.

FPD Proposed de-listing.

California State Status

SE Endangered. Species whose continued existence in California is jeopardized.

ST Threatened. Species, although not presently threatened with extinction, that is likely to become endangered in the foreseeable future.

SSC Species of Concern.

SFP State Fully Protected under Sections 3511 and 4700 of the Fish and Game Code.

Sens Considered a sensitive species by the California Department of Forestry.

California Native Plant Society

1A Plants presumed extinct in California

1B Plants that are rare or endangered in California and elsewhere.

2 Plants that are endangered in California, but more common elsewhere.

3 Plants about which more information is needed.

4 Plants of limited distribution (a watch list).

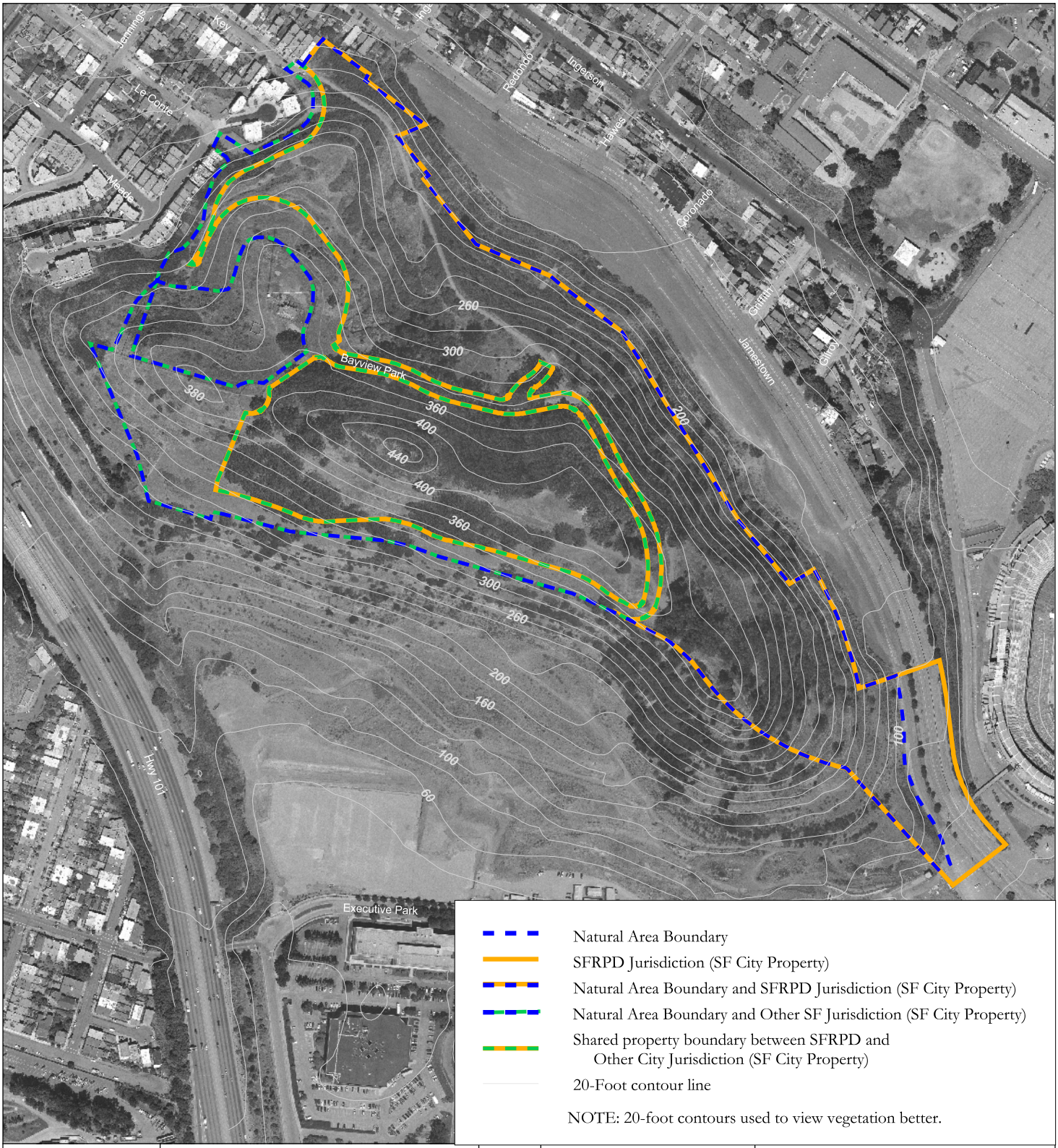
LS Locally Significant.

Golden Gate Audubon Society

SLC Species of Local Concern

Table 6.17-3. Management Area at Bayview Park and sensitive plant species to consider for augmentation within Management Areas.

Management Area	Species
MA-1b	western goldenrod (*Euthamia occidentalis*)
MA-1c	Shooting star (*Dodecatheon hendersonii* ssp. *clevelandii*), broadleaf aster (*Aster radulinus*), coast larkspur (*Delphinium hesperium*), California larkspur (*Delphinium californicum*), canyon gooseberry (*Ribes menziesii*), wood rose (*Rosa gymnocarpa*), and San Francisco collinsia (*Collinsia multicolor*).
Ma-1d	San Francisco collinsia, shooting star, and western goldenrod
MA-1f	big squirrel tail (*Elymus multisetus*), grassland gilia (*Gilia clivorum*), and common fiddleneck (*Amsinckia menziesii* var. *intermedia*)
MA-1g	broadleaf aster, common stickyseed (*Blennosperma nanum* var. *nanum*), coast larkspur, California larkspur, big squirrel tail, annual hairgrass (*Deschampsia danthonioides*), California fescue (*Festuca californica*), common fiddleneck, canyon gooseberry, wood rose, shooting star, western goldenrod, Scouler's large campion (*Silene scouleri* ssp. *grandis*) and woodland star (*Lithophragma affine*)
MA-1h	San Francisco collinsia
MA-2a	broadleaf aster, coast larkspur, California larkspur, big squirrel tail, and wood rose
MA-2b	woodland star, California larkspur, western goldenrod, bitter cherry (*Prunus emarginata*), and wood rose
MA-2c	canyon gooseberry, and broadleaf aster
MA-2d	California fescue, coast larkspur, and California larkspur
MA-2e	bitter cherry, purple owl's clover (*Castilleja exserta* ssp. *exserta*), coast larkspur, big squirrel tail, western choke cherry (*Prunus virginiana*), and California larkspur
MA-2f	broadleaf aster and common fiddleneck
MA-2g	broadleaf aster, common stickyseed, California larkspur, big squirrel tail, California fescue, common fiddleneck, canyon gooseberry, shooting star, and bitter cherry



Natural Area Boundary

SFRPD Jurisdiction (SF City Property)

Natural Area Boundary and SFRPD Jurisdiction (SF City Property)

Natural Area Boundary and Other SF Jurisdiction (SF City Property)

Shared property boundary between SFRPD and Other City Jurisdiction (SF City Property)

20-Foot contour line

NOTE: 20-foot contours used to view vegetation better.

Source: Aerial photography San Francisco Department of Public Works, 2002, Orthophoto - San Francisco - 1-foot resolution, 2001; property boundary data derived by San Francisco Recreation and Park Department (RPD) 2005 from data provided by San Francisco Department of Telecommunications and Information Services, 2002; natural area boundary data created by San Francisco State University Institute for GISc from information provided by RPD's Natural Areas Program (NAP), 2005; contour lines provided by San Francisco Department of Conservation; all data are California State Plane Zone III, NAD 83.

Created by Debra Dwyer, San Francisco State University Institute for GISc, May 5, 2002, revised June 10, 2005.

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Feet

EIP ASSOCIATES

FIGURE 6.17 - 1

AERIAL PHOTOGRAPH WITH BOUNDARIES AND CONTOUR LINES

Bayview Park

Significant Natural Resource Areas Management Plan

San Francisco, California

Soils, Land Features, and Trails

1A	slope	5	bare ground		asphalt or gravel road
3J	parking lot	7	drainages, creeks		primary earthen trail
3M	buildings, developed lots	8	terraces		steps
4A	chert	10	soil slip/earth flow		secondary earthen trail
4B	sandstone	12	wet/seepage or marsh area		proposed trail
4E	quarry floor	14	thin rocky soils over bedrock		closed trail
4F	quarry face		vegetation series boundary		Natural Area boundary

EIP ASSOCIATES

Source: Vegetation data collected by San Francisco Department of Recreation and Parks Significant Natural Areas Program (NAP), San Francisco State University Biology Department, and EIP Associates, 1999-2000; soil and land features data collected by EIP Associates, 1999 - 2002; trails data collected by NAP, 2005; data layers digitized by Geotopo, Inc., 1999 - 2000; edited and corrected by San Francisco State University Institute for GISc (SFSU IGISc), 2000, 2005; trails data digitized by SFSU IGISc, 2005; natural area boundary created by SFSU IGISc from data determined by NAP, 2005.

Created by Debra Dwyer of San Francisco State University Institute for GISc June 19, 2001, revised December 9, 2005.

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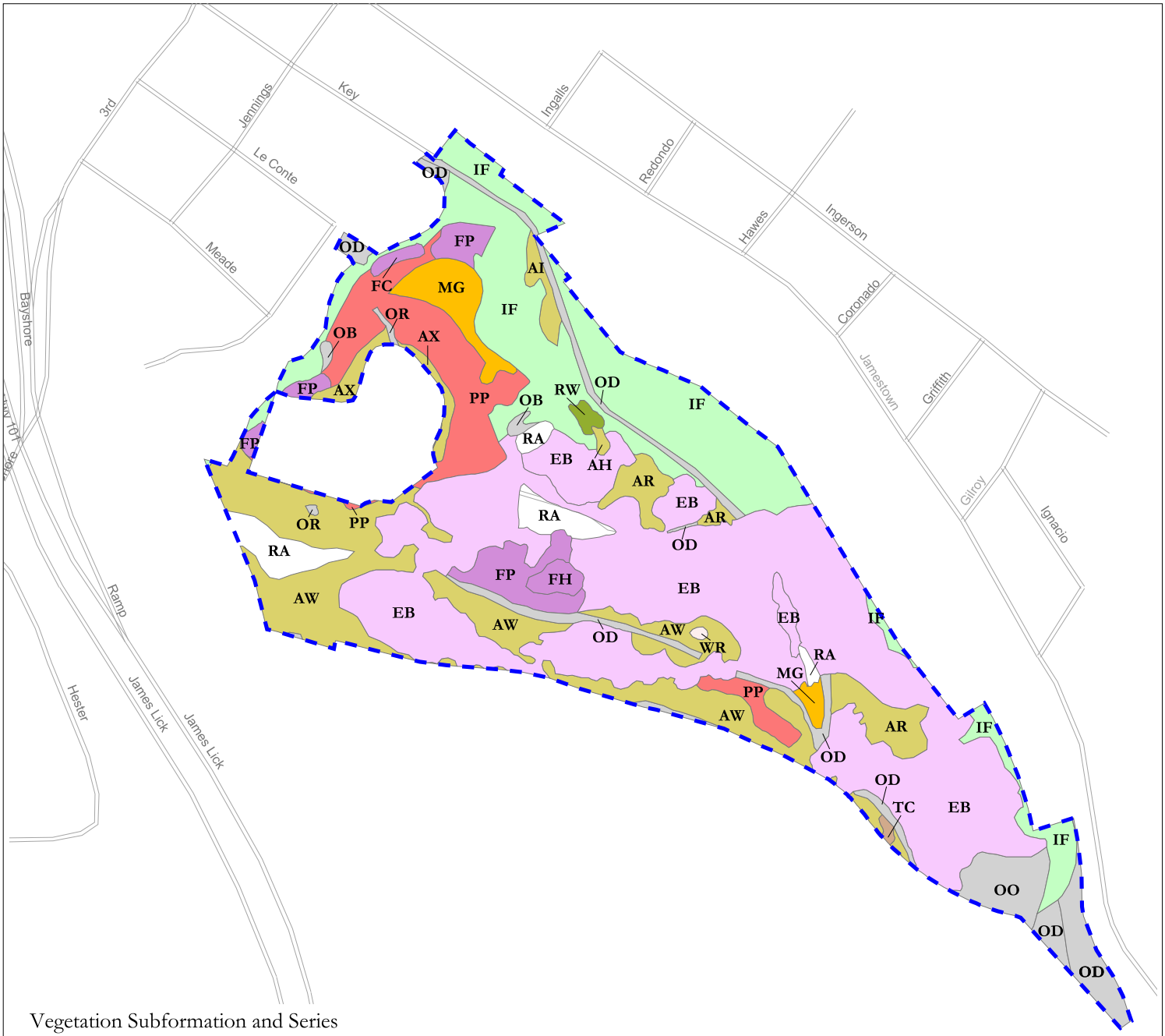
FIGURE 6.17 - 2

SOILS, LAND FEATURES, AND TRAILS

Bayview Park

Significant Natural Resource Areas Management Plan

San Francisco, California



Vegetation Subformation and Series

Annual Grassland

- AH — hairgrass grassland
- AI — Italian ryegrass grassland
- AR — rattlesnake grassland
- AW — wild oat grassland
- AX — wild oat/rattlesnake grassland

Central Coast Riparian Scrub

- RW — willow scrub

Native Forest

- TC — coast live oak forest

Perennial Grassland

- PP — purple needlegrass prairie

Northern Franciscan Coastal Scrub

- FC — coyote brush scrub
- FH — holly-leaf cherry scrub
- FP — poison oak scrub

Wetland

- WR — rush meadow

Mosaic

- MG — wild oat/French broom mosaic

Non-native Scrub

- IF — French broom scrub

Non-native Forest

- EB — blue gum forest

Other

- OB — bare ground
- OD — developed
- OO — ornamental
- OR — rock outcrop
- RA — restoration area
- Natural Area boundary

Source: Vegetation data collected by San Francisco Recreation and Park Department Natural Areas Program (NAP), San Francisco State University Biology Department, and EIP Associates, 1999-2000; vegetation digitized by Geotopo, Inc.,2000; edited and corrected by San Francisco State University Institute for GISc (SFSUGIS), 2000; natural area boundary created by SFSUGIS from data determined by NAP, 2005; streets data excerpted from ArcView StreetMap by Environmental Systems Research Institute, Inc. ESRI, copyright 1998-2001.

Created by Debra Dwyer of San Francisco State University Institute for GISc June 6, 2001, revised June 6, 2005.

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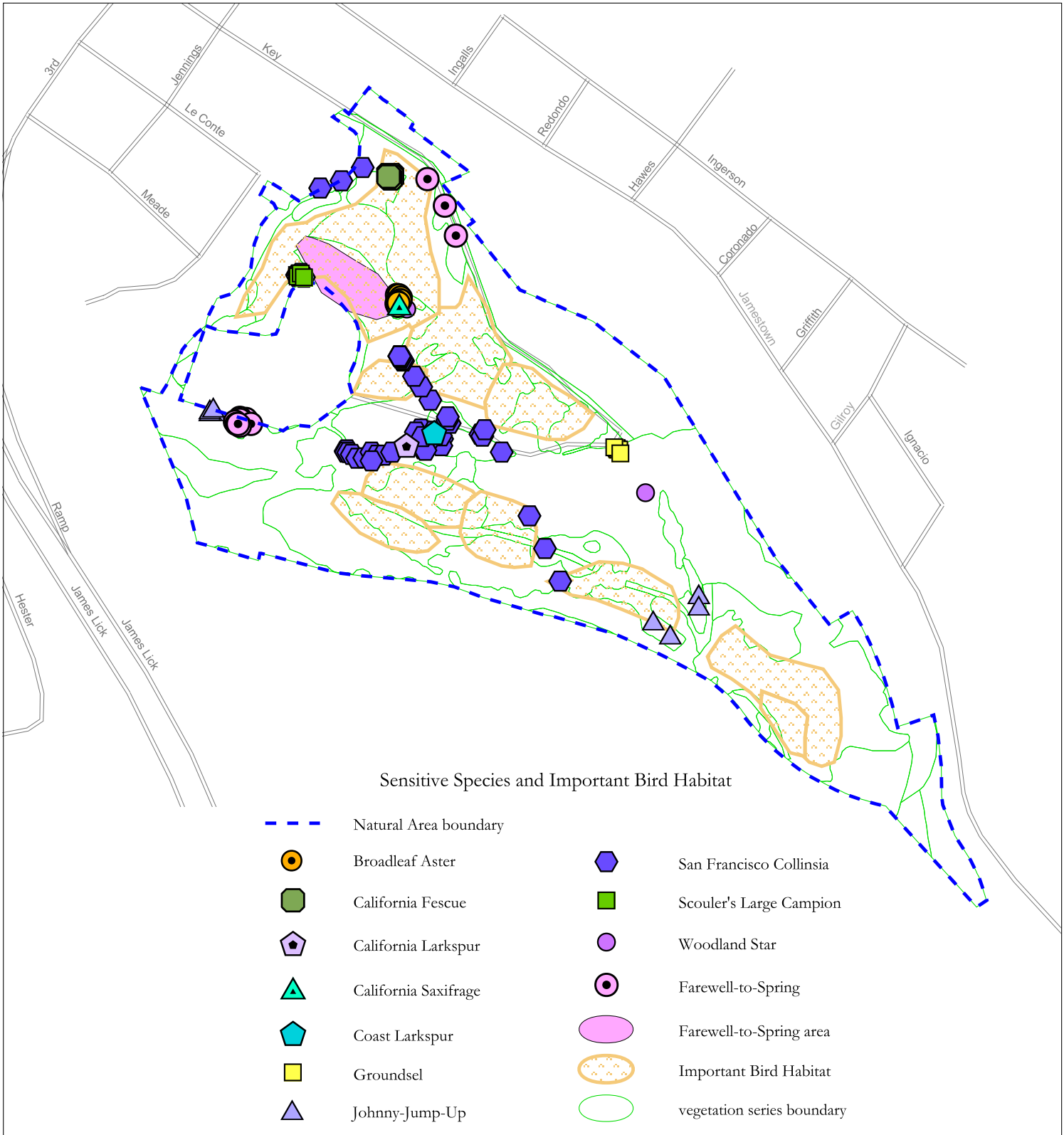
EIP ASSOCIATES

FIGURE 6.17 - 3
VEGETATION
Bayview Park
Significant Natural Resource Areas Management Plan

San Francisco, California



EIP ASSOCIATES

Source: Sensitive species data collected by San Francisco Department of Recreation and Parks Significant Natural Areas Program (NAP) 1998 - 2005; vegetation series data collected by NAP, San Francisco State University Biology Department, and EIP Associates, 1999-2000; vegetation digitized by Geotopo, Inc., 2000; edited and corrected by San Francisco State University Institute for GISc (SFSU IGIS), 2000; natural area boundary data layer created by SFSU IGIS from data determined by NAP, 2005; important bird habitat created by NAP from information provided by the Golden Gate Chapter of the Audubon Society, 2005; streets data excerpted from ArcView Street-Map 2000, copyright 1998-2000, Environmental Systems Research Institute, Inc. (ESRI).

Created by Debra Dwyer of San Francisco State University Institute for GISc November 12, 2001, revised October 13, 2005.

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FIGURE 6.17 - 4

SENSITIVE SPECIES AND IMPORTANT BIRD HABITAT

Bayview Park

Significant Natural Resource Areas Management Plan

San Francisco, California

Mgmt Area	Action
MA-1a	• Maintain diverse native grassland
MA-1b	• Remove approximately 5 invasive trees • Maintain diverse native grassland • Augment sensitive plant populations
MA-1c	• Remove approximately 30 invasive trees • Maintain diverse native grassland • Augment sensitive plant populations • Reintroduce sensitive plants • Discourage motorcycle use. Install fences if necessary
MA-1d	• Remove approximately 140 invasive trees • Maintain diverse native grassland • Augment sensitive plant populations • Reintroduce sensitive plants • Discourage motorcycle use. Install fences if necessary • Consider development of a new trail
MA-1e	• Maintain diverse native grassland • Augment Mission blue butterfly habitat • Augment sensitive plant populations
MA-1f	• Remove approximately 10 invasive trees • Maintain diverse native grassland • Augment sensitive plant populations • Reintroduce sensitive plants
MA-1g	• Maintain diverse native grassland • Augment sensitive plant populations • Reintroduce sensitive plants • Discourage motorcycle use. Install fences if necessary • Limit dog use to on-leash only • Monitor potential impacts to endangered Mission blue butterfly habitat and install trailside fencing if required (south of radio tower only)
MA-1h	• Maintain diverse native grassland • Augment sensitive plant populations
MA-2a	• Remove approximately 70 invasive trees • Maintain and enhance a mixed native oak-grassland mosaic • Augment sensitive plant populations
MA-2b	• Remove approximately 100 invasive trees • Maintain and enhance oak woodland • Augment sensitive plant populations • Reintroduce sensitive plants
MA-2c	• Maintain and enhance willow riparian, scrub and grassland mosaic • Augment sensitive plant populations

Mgmt Area	Action
MA-2d	• Remove 1 invasive tree • Maintain and enhance scrub-grassland mosaic • Augment sensitive plant populations • Augment Mission blue butterfly habitat
MA-2e	• Remove approximately 150 invasive trees • Maintain and enhance cherry tree woodland, scrub, and grassland • Augment sensitive plant populations • Augment Mission blue butterfly habitat
MA-2f	• Maintain and enhance grassland • Augment sensitive plant populations • Augment Mission blue butterfly habitat
MA-2g	• Remove approximately 5 invasive trees • Maintain and enhance scrub-grassland mosaic • Augment sensitive plant populations • Augment Mission blue butterfly habitat • Augment wrentit habitat • Reintroduce sensitive plants • Limit dog use to on-leash only
MA-3a	• Maintain and enhance urban forest
MA-3b	• Maintain and enhance existing forest-grassland-scrub mosaic • Maintain showy native landscaped park entrance • Allow important nectar/larval/seed invasive plants to persist for wildlife • Stabilize eroding slope

Natural Area Wide Management Actions

- Reduce and contain herbaceous and woody weeds
- No invasive tree removal unless specified above
- Prevent recruitment of invasive trees unless specified above
- Total trails to remain (including possible new trails): 8,077 linear-feet
- Provide access on designated trails only
- Social trails subject to closure
- Total invasive trees to remove: 511; Total invasive trees to remain: 5,489
- Implement erosion control as required (GR-12)
- Implement wildlife enhancements as appropriate

Management Areas

- management area 1
- management area 2
- management area 3

Trails

- primary
- secondary
- proposed

EIP ASSOCIATES

Source: Management areas and trails data collected by San Francisco Department of Recreation and Park Natural Areas Program (NAP), 2005; trails data digitized by San Francisco State University Institute for GISc (SFSU IGIS), 2005; streets data excerpted from Environmental Systems Research Institute (ESRI), Inc.'s StreetMap 2000 data copyright ESRI 1998-2001; aerial photography San Francisco Department of Public Works, 2002, Orthophoto - San Francisco - 1-foot resolution - 2001; all data are in California State Plane Zone III projection, NAD 1983; map produced using ArcGIS 9.0 software by ESRI.

Map created May 29, 2005 by Debra Dwyer, San Francisco State University, Institute for Geographic Information Science; revised December 11, 2005.

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Feet

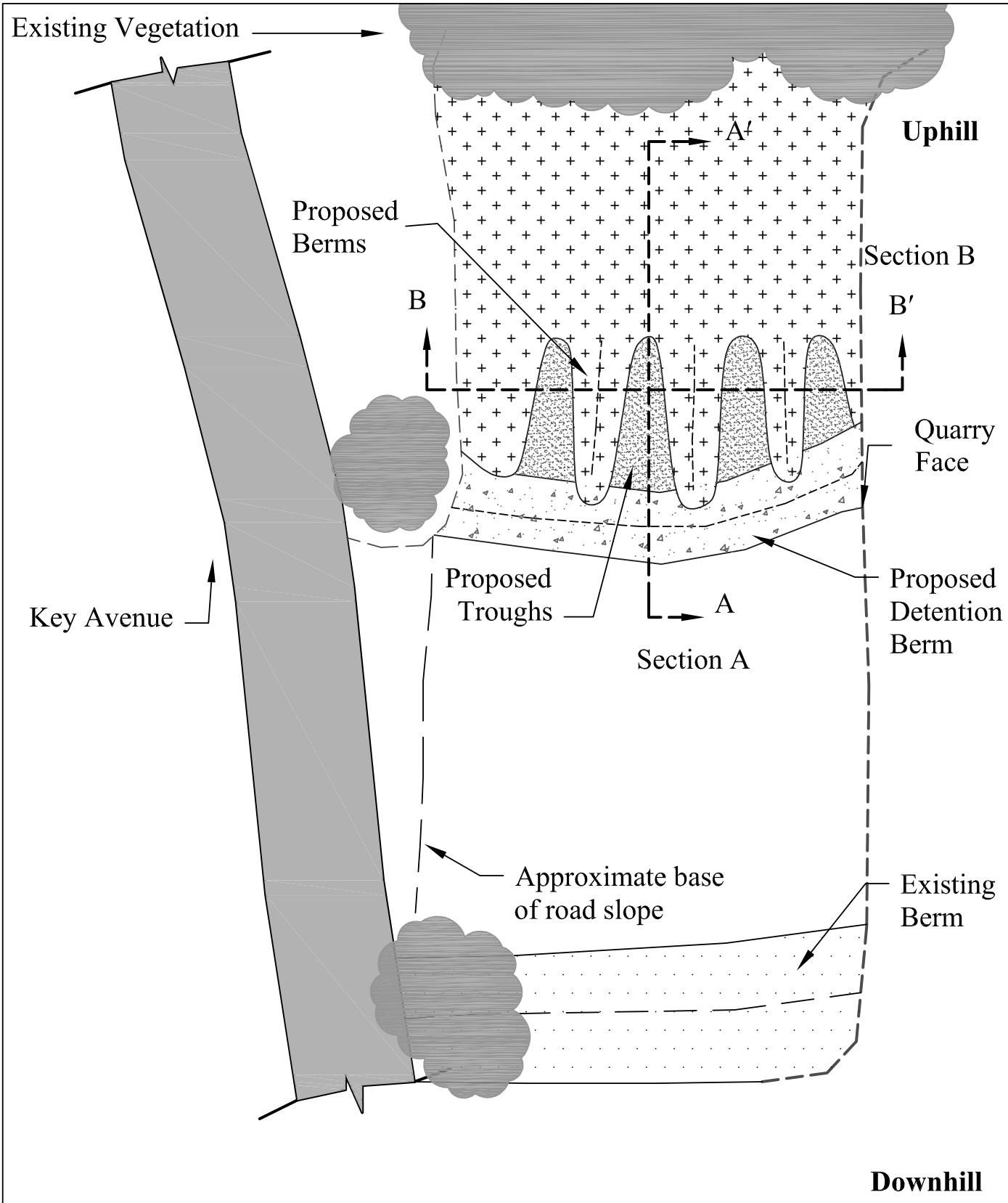
FIGURE 6.17 - 5

MANAGEMENT AREAS AND TRAIL PLAN

Bayview Park

Significant Natural Resource Areas Management Plan

San Francisco, California



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EIP ASSOCIATES

Project Number 10108-00
Edited by: DE, 6-3-2005.

Not Drawn to Scale

Public Draft, June 2005

FIGURE 6.17-6
CONCEPTUAL DETENTION BASIN PLAN
Bayview Park
Significant Natural Resource Areas, Management Plan
San Francisco, California

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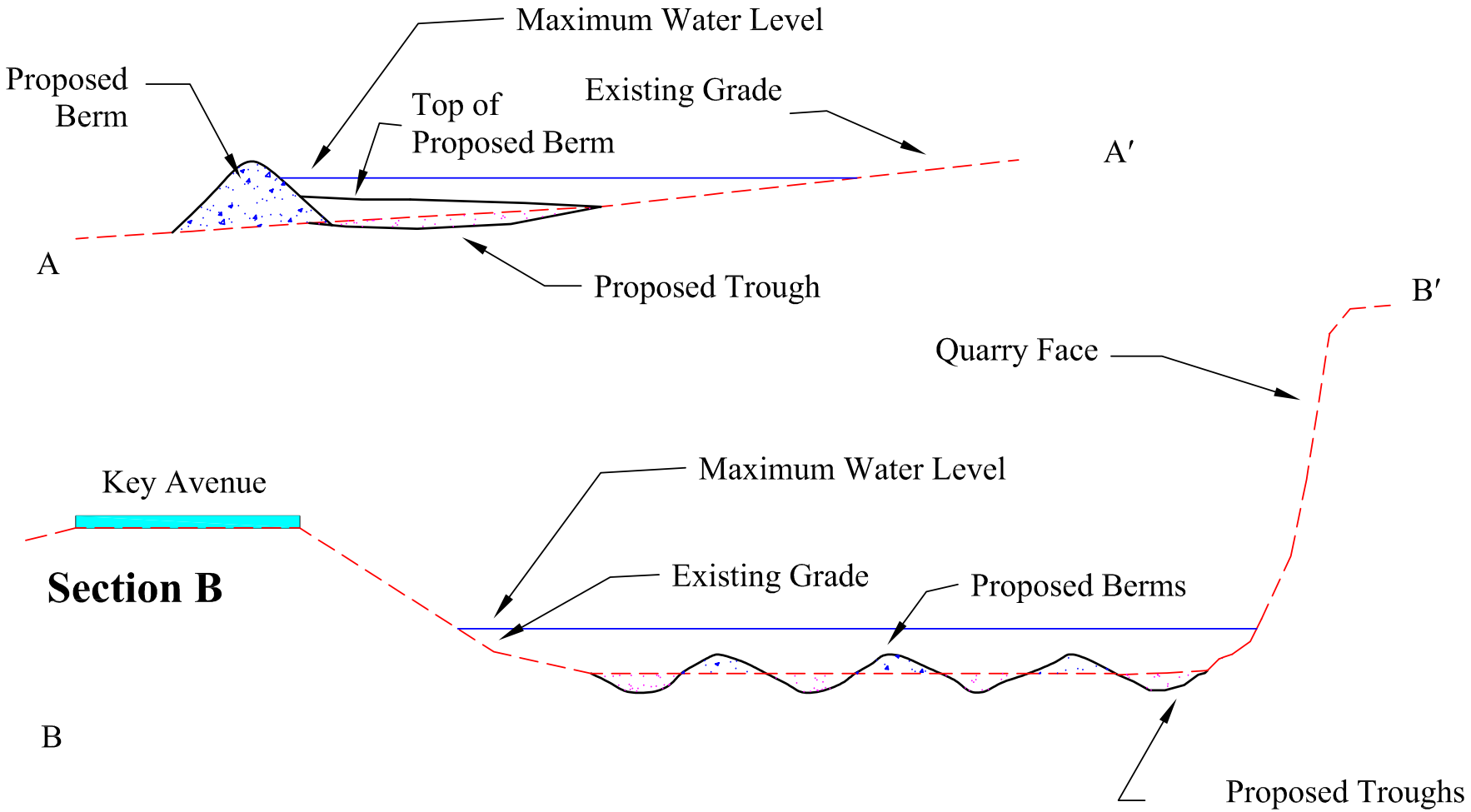


EIP ASSOCIATES

Project Number 10108-00
Edited by: DE 6-3-2005

Not Drawn to Scale

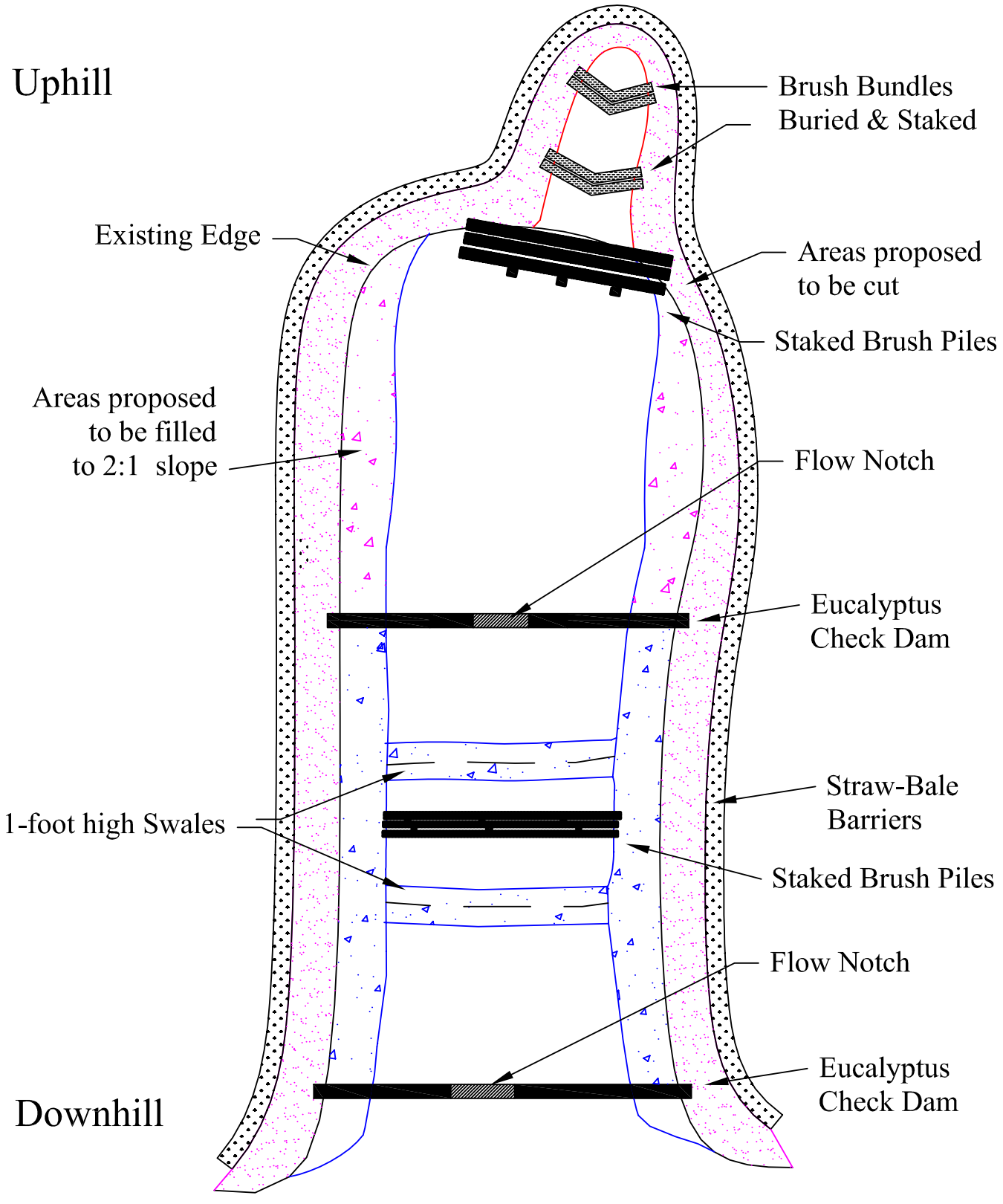
Public Draft June 2005

FIGURE 6.17-7

CONCEPTUAL DETENTION BASIN SECTIONS

Bayview Park

Significant Natural Resource Areas, Management Plan
San Francisco, California



EIP ASSOCIATES

Project Number 10108-00
Edited by: DE, 6-3-2005

Not Drawn to Scale

Public Draft June 2005

FIGURE 6.17-8
CONCEPTUAL GULLY EROSION CONTROL PLAN
Bayview Park
Significant Natural Resource Areas, Management Plan
San Francisco, California

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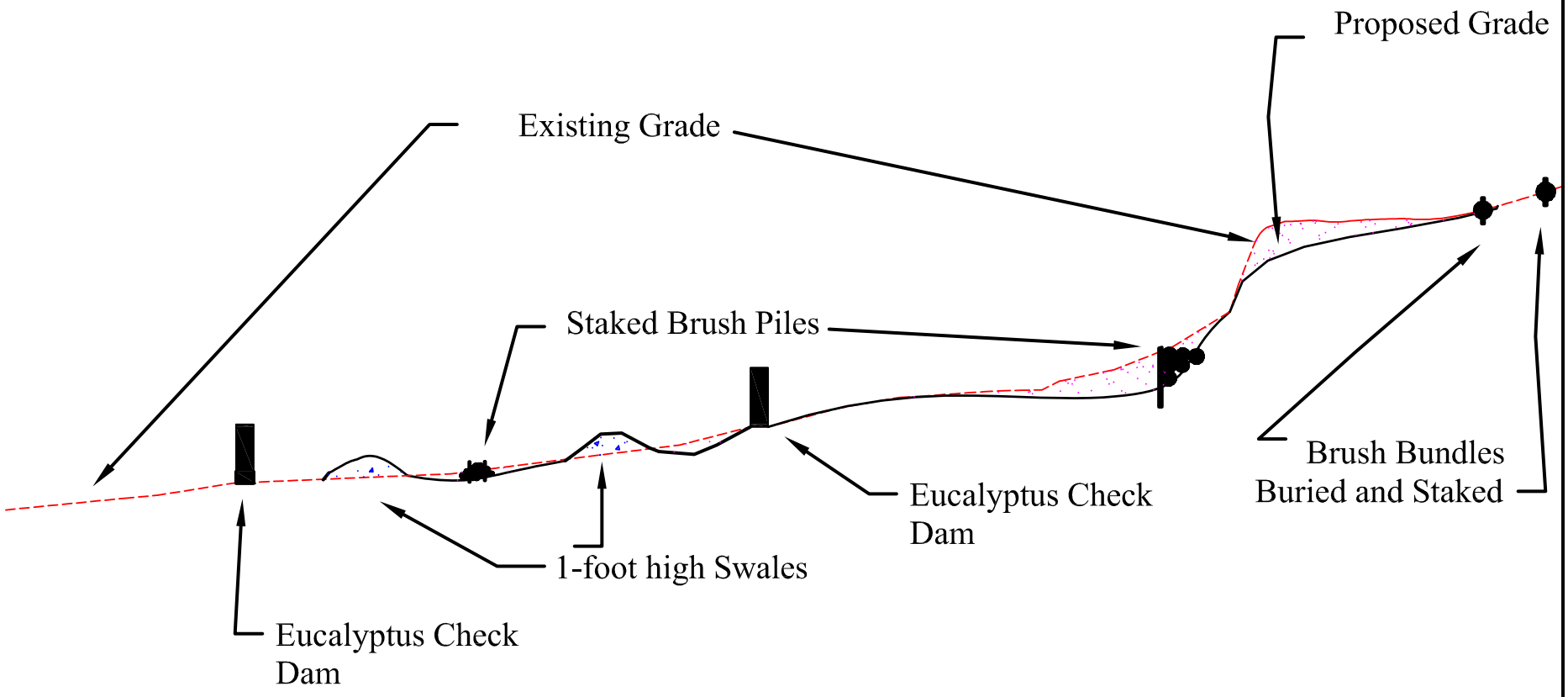

EIP ASSOCIATES

Project Number 10108-00
Edited by: DE 6-3-2005.

Not Drawn to Scale

Public Draft June 2005

FIGURE 6.17-9

CONCEPTUAL GULLY EROSION CONTROL SECTION

Bayview Park

Significant Natural Resource Areas, Management Plan
San Francisco, California