Appendix D Biological Resources Report

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BIOLOGICAL RESOURCES REPORT
NEWBY ISLAND LANDFILL EXPANSION
PLANNED DEVELOPMENT EIR

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EXECUTIVE SUMMARY

Allied Waste proposes a Planned Development (PD) rezoning of all of the Newby Island Landfill and the adjacent Recyclery (collectively "Newby Island Landfill"). The proposed PD zoning would not change the lateral extent of the landfill footprint, but would raise the maximum height of the landfill to 245 ft above mean sea level (msl), adding approximately 15.12 million yd^3 to the capacity of the landfill. Presently, the landfill is designed and permitted to an elevation of 150 ft msl. The proposed PD zoning will also conform and clarify the legal non-conforming uses the Newby Island Landfill and will specify the allowable current and future uses. The project will not materially extend the life of the landfill. The Newby Island Landfill is located in the City of San José at the western terminus of Dixon Landing Road.

The majority of the project site has limited plant species diversity due to the disturbed nature of most of the property. Four habitats occur on the project site: landfill/ruderal, developed, tidal brackish marsh (within wetland areas adjacent to the landfill), and aquatic (in the landfill retention basins). Extensive wetlands occur along the edge of the majority of the site (characterized as muted tidal salt marsh), including wetlands along Coyote Creek, South Coyote Slough, and the Fremont Lagoons.

No special-status plant species were observed on the project site, and none are expected to occur there. Thus, the project is not expected to result in impacts to special-status plant species. The project site provides suitable foraging habitat for several special-status wildlife species, including the American peregrine falcon, tricolored blackbird, golden eagle, short-eared owl, yellow warbler, bank swallow, western red bat, and hoary bat. White-tailed kites, northern harriers, San Francisco common yellowthroats, Alameda song sparrows, Bryant's savannah sparrows, and loggerhead shrikes could breed on or very close to the site. The Central California Coast steelhead and fall-run Chinook salmon occur in Coyote Creek immediately adjacent to the site. However, impacts to these species and their habitats will be less than significant because the project's impact areas are already subject to heavy disturbance by ongoing activities; the project avoids direct impacts to marshes surrounding the project site; the project will not introduce activities resulting in substantially increased noise and vibrations in close proximity to the surrounding marshes; and the project will implement BMPs to avoid contamination of these adjacent habitats. Project implementation will not substantially reduce the habitat that is regionally available to these species or substantially restrict their range.

California clapper rails may nest in brackish marshes adjacent to the site, and salt marsh harvest mice and salt marsh wandering shrews occur in these adjacent marshes as well. These species are already subjected to potential disturbance from the ongoing landfill activities, and such disturbance is not expected to increase substantially, in terms of type or magnitude of disturbance, as a result of the project. However, because the project may increase the effective life span of the landfill, it may prolong the period in which these species are subject to such disturbance. Given the low population sizes of these three species, such impacts would be significant. Mitigation measures will reduce these potential impacts to less than significant levels.

Burrowing owls are not known to occur on the project site, but they could potentially breed on the site. As a result, project implementation could result in significant direct impacts to individual burrowing owls and their nests if the species is present. Mitigation measures will reduce these potential impacts to less than significant levels.

The vertical expansion of the landfill (and subsequent increased capacity of the landfill) will not increase the amount of garbage that will be handled in a given period of time relative to baseline levels. However, in the absence of project approval, the amount of garbage that will be handled in a given period will be reduced, so that until the closure of the landfill, substantially more garbage will be handled with the project than without it. In addition, the project will give formal approval to some of the ongoing recycling operations, including the handling of food waste. As a result, project approval will sustain anthropogenic food supplies for several "nuisance" species. Some of these species, including California gulls, common ravens, American crows, feral cats, red foxes, raccoons, and rats, prey on and compete with more sensitive special-status wildlife species in the South San Francisco Bay area. Other gull species may benefit from the provision of food during the winter and then have adverse effects on sensitive species in those gulls' breeding and staging areas farther north. Although recent monitoring of gull abatement efforts at the landfill have demonstrated remarkable success in reducing numbers of gulls foraging there, the project may still support higher populations of these nuisance species than would occur in the absence of project approval, potentially resulting in harm to more sensitive species through competition or predation. These indirect impacts to sensitive species are considered significant. Implementation of a Nuisance Species Abatement Plan, which the applicant has prepared, will reduce these impacts to less than significant levels.

ENVIRONMENTAL SETTING

PROJECT DESCRIPTION

The approximately 352-acre project site consists of the Newby Island Sanitary Landfill and the adjacent Recyclery [Assessor's Parcel Numbers (APNs): 015-40-002 and 015-31-024] (Figure 1). The landfill proper is approximately 342 acres in size. The Recyclery, a materials recovery facility, is located on a separate 10-acre parcel immediately to the southeast of the landfill. Although these 2 properties are not owned by the same entities, the landfill and Recyclery operations are integrated, and the project referred to herein as the "Newby Island Landfill project" includes the proposed activities at both the landfill and the Recyclery unless otherwise specified.

The purpose of the project is to rezone the project site to recognize the existing landfill and recycling operations and increase the allowable top elevation of the landfill from 150 ft to 245 ft relative to mean sea level (msl), which will increase the capacity of the landfill by approximately 15.12 million yd^3.

The Newby Island Landfill Expansion Planned Development project aims to:

- extend the useful life of the landfill by increasing landfill capacity;
- allow the landfill to continue to accept more of the waste from within the region for a longer period of time than would currently be allowed by the existing permits;
- create a zoning district that recognizes the existing landfill and waste diversion activities that are currently on the site and allows for similar uses in the future; and
- allow ongoing and future waste diversion and waste management activities to be relocated on the property as landfilling continues over the remainder of the property.

The site has been used as a landfill since the 1930s. It was annexed into the City of San José in 1968 as an operating landfill. The landfill area is currently designated as *Private Open Space* with a *Solid Waste Disposal Facility* overlay in the City's General Plan, is outside the Urban Service Area (USA), and is zoned *Multiple Residence District.* Uses allowed on sites with the SW designation include landfills and ancillary activities such as equipment maintenance, collection and processing of recycled materials, composting, and energy/transformation operations. A portion of the parcel referred to as the "D-shaped area" (located north of the Recyclery) is within the USA, has a General Plan designation of *Light Industrial,* and is also currently zoned R-M. The D-shaped area, which is currently used for offices and vehicle parking but is permitted to be landfilled, is lined in conformance with recent federal regulations to prevent groundwater contamination and to contain any spills that might occur.

The planned progress of the remainder of the landfill would be to dispose waste along the southerly portion of the site. The landfill's permitted refuse disposal area consists of approximately 313 acres, which includes the 17-acre D-shaped area. Under current permits,

approximately 313 acres (including the D-shaped area) is a permitted landfill use for which existing permits issued by the City of San José and the State of California allow its use for refuse disposal. This area is bounded by a perimeter levee. Another 29 acres consists of sloughs and marshland outside of the perimeter levee and will not be used as landfill or for any other purpose. The project site takes almost all access from Dixon Landing Road and contains various paved and temporary roads. Under existing permits, landfilling and final grading will achieve a maximum height of approximately 150 ft msl.

Without the proposed expansion, landfilling activities are anticipated to be completed around 2025. The existing design and associated permits specify that the landfill can only be constructed to elevation 150 ft msl. Without approval of the expansion, the amount of waste that can be accepted by the landfill will decrease, relative to existing conditions, so that the landfill will just be fulfilling its contractual obligations through 2025. With approval of the expansion, the landfill will not be accepting more waste per year than it currently does, on average, but it will be able to accept the current levels of waste for a longer period than would be possible without the project. After landfilling has ceased, final cover will be installed as will the appropriate monitoring systems.

In addition to the increased height and capacity, the project includes some refinements to the existing site plan and incremental changes in operations that may be necessary or desirable for the remaining life of the landfill.

The Recyclery

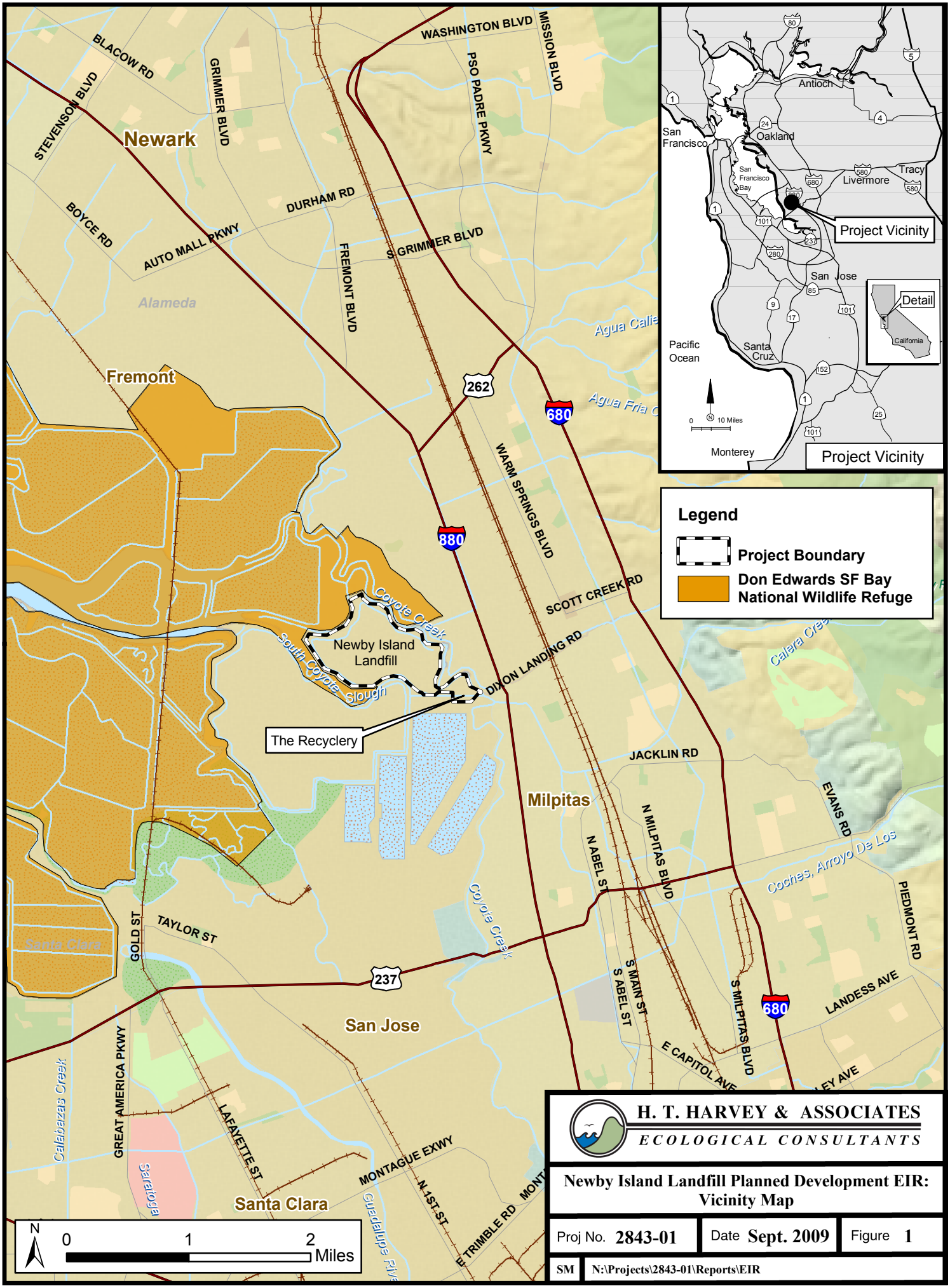
The Recyclery is located on a 10-acre parcel immediately to the southeast of the landfill. The existing Planned Development zoning allows two phases of development. Phase I may include up to 3 buildings that may be used for recycling and administration, as follows:

> Office and administrative functions, a public recycling and buyback center, a recycling education center, and a materials recovery center. The materials recovery center will receive a number of recyclable solid waste materials for processing. Materials will be extracted from the mixed waste stream through a series of mechanical and manual sorting systems. These materials will be composed primarily of one or more of the following components: paper, plastic, glass, metal, wood, or rubber.

No burning of waste materials or recycled commodities is allowed by the existing zoning.

Phase II could include expansion of the existing Recyclery building, or it can be used for preliminary processing of green waste and/or wood waste. The zoning defines in detail the purpose of the preliminary processing of green waste and/or wood waste, what actions it can include and what are the limitations on the activities. It also states that:

> The area of the property will not be used to process food waste or solid waste other than wood waste and/or green waste. Contaminants (which are defined to mean anything other than wood waste and/or green waste) found in loads of wood waste and/or green waste will be removed and either disposed at a sanitary landfill or processed at the Recyclery for recycling. Hazardous materials found in loads will cause such loads to be returned to the



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Newby Island Landfill Planned Development EIR: Vicinity Map

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generator or, if the generator cannot be identified, the hazardous materials will be received and disposed in conformance with State and Federal regulations.

Some processing of food waste for composting currently takes place at the Recyclery. This activity is not yet approved, but approval of food waste processing is being sought through the current project.

Components of the Proposed Project

Specific physical changes anticipated as a result of this project include the following:

Landfill Site Plan/Operations

- The top elevation of the landfill will be increased, compared to both existing and permitted conditions. The existing landfill height where the additional height is proposed varies between 100 and 130 ft msl, and the currently approved permit allows a maximum of 150 ft msl. The proposed permitted height would be increased to 245 ft msl, which will add approximately 15.12 million yd^3 capacity beyond that already permitted.
- The landfill maintenance shop may be relocated to either a different portion of the landfill area or the D-shaped area.
- The fueling station may be relocated to the D-shaped area.
- The existing landfill scales will be relocated to the east, possibly onto the D-shaped area, to allow sufficient queuing distance.
- The leachate management system (holding tanks and ancillary facilities) may be relocated to the D-shaped area.
- The stormwater retention pond that is located along the southern boundary of the site will be replaced with two new stormwater detention ponds.
- Construction and demolition (C & D) materials recycling, tire shredding, rock crushing, and concrete processing may be relocated to a different part of the landfill area and expanded to include recycling of carpet and/or other types of bulky materials.
- Leachate may be transported to the San José/Santa Clara Water Pollution Control Plant by an existing pipeline rather than by truck.
- The compost windrows may be moved to one or more different locations on the landfill.

The Recyclery

- Vehicle maintenance of hauling company vehicles could be located on the Recyclery and the D-shaped area.
- The hauling company employee locker room, shop, and offices may be located on the Recyclery property or D-shaped area.
- Processing of food waste for composting would be allowed on the Recyclery property.

Other Operations

- The Gas Recovery Systems plant may be relocated to the east, probably to the D-shaped area;
- Biosolids may be used as a constituent of interim or final cover, to facilitate revegetation.
- Additional soil will be imported, if necessary for operations or closure.
- Bentonite or similar soil will be imported for liner construction or closure.
- Landfill gas may be utilized for on-site energy needs.
- Operational or physical changes necessary to reduce greenhouse gas emissions will be implemented.
- Operational or physical changes necessary to comply with existing and new regulations will be implemented.
- Leachate, condensate, or other wastewaters generated on-site will be piped directly to the San José/Santa Clara Water Pollution Control Plant.
- Other emerging technologies having no greater or substantially different environmental impacts than the project elements addressed above may be implemented.

Nuisance Species Abatement

The landfill and Recyclery currently employ a number of measures to control nuisance species, including rodents, gulls, and mosquitoes, that may be attracted by activities at these facilities. The following bird deterrent techniques have been implemented at the Newby Island Landfill and Recyclery:

- Reducing availability of food supply by maintaining a small working face and through the compaction and daily cover of refuse.
- Eliminating sources of water through drainage controls which prevent ponding of water.
- Use of blank-firing guns and other noise-making devices by landfill personnel to minimize birds' desire to land at the landfill.
- Use of falcons and dogs to deter birds from the landfill.

Newby Island Landfill operators have been using pyrotechnics since January 2008 or earlier to discourage gulls from congregating on the landfill. In June 2008, a focused effort to reduce numbers of gulls at the landfill was initiated using multiple abatement techniques. The gull abatement program included a combination of pyrotechnics, trained falcons, propane cannons, and paintball guns implemented by abatement specialists. The San Francisco Bay Bird Observatory (SFBBO) conducted gull surveys to monitor the program's effectiveness in reducing numbers of breeding California gulls (*Larus californicus*) and wintering gulls using the landfill; the results of this monitoring are described in *Biotic Habitats* below.

The following landfill and Recyclery maintenance activities are implemented to discourage rodent and insect propagation and habitation:

- Compaction and daily cover of refuse with soil to eliminate rodent habitat and food.
- Covering of tire piles with a tarp, rapid processing of tires, and regular inspection of tires for mosquitoes.
- Covering wastes with compacted soil or an approved alternative, and minimizing the work area over which refuse is spread to prevent the emergence of flies from eggs present in household wastes.
- Diligent cleaning and housekeeping in the Recyclery.
- Monthly service by a rodent control contractor.

While these measures have achieved success in limiting nuisance species populations at the landfill and Recyclery, the project proponents have prepared a comprehensive Nuisance Species Abatement Plan that will be implemented as part of the proposed project. This plan appears in Appendix B.

GENERAL PROJECT AREA DESCRIPTION

The Newby Island Landfill project site is located at the western end of Dixon Landing Road, west of I-880, at 1601 Dixon Landing Road in the City of San Jose, Santa Clara County, California (Milpitas 7.5 minute USGS Quadrangle) (Figure 2). The approximately 352-acre site is bounded by Coyote Creek east of the project site; the San Francisco Bay National Wildlife Refuge and wetlands associated with Coyote Creek, the Fremont Lagoons tidal restoration area, and South Coyote Slough south, west, and northwest of the project site; and the Santa Clara Valley Water District's (SCVWD's) Reach 1A waterbird pond and salt marsh harvest mouse (*Reithrodontomys raviventris*) habitat restoration area to the southeast. The biosolids lagoons of the San José/Santa Clara Wastewater Pollution Control Plant (WPCP) and Salt Pond A18 are located a bit farther south and southwest of the project site, and former salt pond A19, which is being restored to tidal habitats by the SCVWD as part of the South Bay Salt Ponds project, is located west of the site. Lands farther north and northeast are developed, or are currently under development, for commercial/light industrial uses. Approximately 313 acres of the project site (i.e., the active landfill, an area known as the "D-shaped area", and the refuse disposal area) are actively used for ongoing landfilling and associated staging and storage operations; approximately 10 acres of the project site is used for the Recyclery; and approximately 27 acres consist of a buffer area occupied by sloughs and marshland. The margins of the project site are situated at an elevation of approximately 0-6 ft msl, and the landfill currently rises to an elevation of 130 ft, with a permitted elevation of 150 ft. The average annual precipitation of the site is 16 inches, and the average annual temperature is 57 °F.

The National Wetland Inventory (NWI 1980) depicts numerous wetland types surrounding the project site, including 1), palustrine emergent, seasonally flooded, diked/impounded; 2), estuarine, intertidal, emergent, regularly flooded; 3), Palustrine, unconsolidated shore, seasonally flooded, diked/impounded; 4), lacustrine littoral, unconsolidated shore, seasonally flooded, diked/impounded; and 5) estuarine subtidal, streambed, regularly flooded (NWI 1985). In addition, 12 wetland features are mapped by NWI within the landfill footprint: 1), 3 palustrine

unconsolidated bottom, semipermanently flooded, diked/impounded features; 2), 5 palustrine unconsolidated shore, seasonally flooded, diked/impounded features; 3), 3 palustrine unconsolidated bottom, permanently flooded, diked/impounded features; and 4), 1 palustrine emergent, seasonally flooded, diked/impounded feature in the D-shaped area.

Historically, soils from 4 series underlay the project site: made land, tidal marsh, Alviso clay, and Campbell silty clay loam, clay substratum (SCS 1968). All of these soils appear on the Santa Clara County hydric soils list (SCS 1992). Tidal marsh and made land are miscellaneous land types described within the soil survey as consisting of land that is periodically covered by ocean water and land of variable textured soil material and refuse over Alviso soils on tidal marsh land, respectively. Alviso clay soils occupy tidal flat positions and are underlain by poorly drained, fine textured soils formed on tidal flats. Campbell silty clay loam, clay substratum soils consist of poorly trained, moderately fine textured, alkaline, alluvial material and may be flooded once every 10 years. It is important to note, however, that the majority of the project has been manipulated extensively subsequent to this soil survey, and the majority of the site is currently underlain by a mix of fill materials.

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Newby Island Landfill Planned Development EIR: Site Detail Map

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BIOTIC SURVEYS

Field surveys of the Newby Island Landfill project site were conducted on 24 March 2008 by H.T. Harvey & Associates' wildlife ecologist Scott Demers, M.S. and botanist Amanda Breen, Ph.D. The purpose of these surveys was to document biotic resources associated with the site that may be impacted by the proposed Planned Development (PD) rezoning and site activities resulting from such rezoning. Specifically, surveys were conducted to describe existing biotic habitats and wildlife communities, and assess the site's potential to support special-status species and their habitats.

In addition to these surveys, we drew on the results of previous California clapper rail surveys conducted along the southwestern and northwestern edge of the landfill (H. T. Harvey & Associates 1989, 1990a, 1990b, 2007), salt marsh harvest mouse trapping surveys conducted to the southeast and east of the landfill (H. T. Harvey & Associates 1990c, 1997, 2000, 2007), and hundreds of hours of surveys and recreational birding by H. T. Harvey & Associates biologists in immediately adjacent areas, such as salt pond A18, the San Jose Santa Clara Water Pollution Control Plant, and the Reach 1A waterbird pond and adjacent reach of Coyote Creek. Data on gull numbers and landfill use of gulls were obtained from the San Francisco Bird Observatory (SFBBO) and the U.S. Geological Survey (USGS). These data include gull counts from landfills, as well as gull colony counts and gull responses to abatement techniques at landfills (Ackerman et al. 2006, SFBBO 2007, Hudson 2008).

BIOTIC HABITATS

A reconnaissance-level survey for botanically sensitive habitats and habitat for special-status plants and animals was conducted. Four habitats/land use types occur on the project site: landfill/ruderal, developed, tidal brackish marsh (within wetland areas adjacent to the landfill), and aquatic (in the landfill retention basins). These biotic habitats and associated vegetation and wildlife are described in further detail below. Plant communities were described in terms of dominant tree, shrub, and herbaceous vegetation composition and, when possible, classified according to the nomenclature of Holland (1986) and Sawyer and Keeler-Wolf (1995).

Landfill/Ruderal

Vegetation. Landfill/ruderal habitat comprises the majority of the project site. Ruderal communities are assemblages of plants that thrive in disturbed areas, and weedy, non-native annual forbs and grasses are typically the first species to colonize these sites following disturbance. Anthropogenic disturbance is constantly occurring on the landfill as new trash is buried, but the majority of the landfill is covered with ruderal vegetation that has been seeded to stabilize the landfill's surface in areas where trash is not being actively buried at this time. Ruderal species observed on the project site include ripgut brome (*Bromus diandrus*), filaree (*Erodium* sp.), black mustard (*Brassica nigra*), wild radish (*Raphanus sativus),* poison hemlock (*Conium maculatum*), Italian rye-grass (*Lolium multiflorum*), and prickly ox-tongue (*Picris echioides*). Ruderal vegetation within the vegetated areas of the landfill is relatively low (2-3 ft tall) and relatively uniformly covers inactive areas of the landfill as grass species predominate. Active areas of the landfill, including access roads, are maintained and contain patchy, low-

statured ruderal vegetation. Along the periphery of the landfill, mustard species grow taller (approximately 5 ft tall) in areas as thick, impenetrable thickets (north of the "D-shaped area") while in other areas this vegetation is sparse or absent. On the northern boundary of the "D-shaped area", some native shrub species, including coyote brush (*Baccharis pilularis*), also occur within ruderal mustard patches before transitioning into tidal brackish marsh habitat on the outboard side of the berm.

Wildlife. The slopes on the sides of the landfill are vegetated and are less disturbed than the active landfill area. As a result, several wildlife species associated with ruderal habitats occur on the landfill's vegetated slopes. Species observed using vegetated slopes of the landfill on the 24 March 2008 site visit include common ravens (*Corvus corax*), American crows (*Corvus brachyrhynchos*), western meadowlarks (*Sturnella neglecta*), and red-tailed hawks (*Buteo jamaicensis*). Other species that likely use the ruderal vegetation include the western fence lizard (*Sceloporus occidentalis*), gopher snake (*Elaphus obsoletus*), California ground squirrel (*Spermophilus beecheyi*), house mouse (*Mus musculus*), and California vole (*Microtus californicus*). Birds such as the house finch (*Carpodacus mexicanus*), white-tailed kite (*Elanus leucurus*), loggerhead shrike (*Lanius ludovicianus*) and northern harrier (*Circus cyaneus*) forage in ruderal grassy areas of the landfill. Western meadowlarks and Bryant's savannah sparrows (*Passerculus sandwichensis alaudinus*) likely nest in undisturbed ruderal vegetation.

The disturbed area of the landfill, where trash is actively dumped and buried, attracts thousands of gulls in winter months, including California gulls, herring gulls (*Larus argentatus*), Thayer's gulls (*Larus thayeri*), ring-billed gulls (*Larus delawarensis*), western gulls (*Larus occidentalis*), glaucous-winged gulls (*Larus glaucescens*), and other species that forage on the refuse at the active landfill area. Gull numbers are substantially lower in summer, but thousands of California gulls, which breed in the South Bay, use the landfill throughout the summer. During reconnaissance-level surveys on 24 March 2008, approximately 4000 gulls, 40% of which were California gulls, were observed foraging and roosting in the active portion on the landfill, despite the use of pyrotechnics designed to dissuade gull usage of the site. Previous gull counts conducted in 2006 by SFBBO and USGS indicate that California gulls are the most numerous gull species between April and August. The average abundance of California gulls at Newby Island during recent survey counts was 3877 gulls (Ackerman et al. 2006) in 2006, and in 2007 the high count of California gulls was 3612 in the month of February (SFBBO 2007). These counts represent the highest number of individuals observed at any one time. However, our observations of gulls here and elsewhere in the South Bay over the years show a high rate of turnover, with gulls constantly moving in and out of the landfill during the day. As a result, the number of different individuals using the landfill in a given day is substantially higher than the maximum number recorded at a given time.

Other high counts of gulls at Newby Island have included 33,000 (including 8000 California gulls) on 22 December 2008 and 24,000 (including 8000 California gulls) on 24 February 1998, (Santa Clara County Bird Data). Other gull species observed in high numbers at Newby Island include herring gulls (9000 on 19 December 1997; 24,000 on 22 December 1998; 20,000 on 8 March 2000), western gulls (200 on 19 February 1997; 400 on 22 December 1998), glaucous-winged gulls (300 on 19 December 1997; 800 on 24 February 1998), and Thayer's gulls (300 on 19 December 1997; 350 on 24 February 1998; Santa Clara County Bird Data). High gull counts

recorded prior to the closure of the Tri-Cities Landfill in 2007 were likely the result of the availability of food at, and the close proximity of, both landfills simultaneously, as gulls were frequently observed moving between the two landfills prior to 2007.

As mentioned previously, Allied Waste initiated a multiple-technique gull abatement program at the landfill in June 2008, and SFBBO has conducted censuses of gulls at the landfill since February 2007 (before abatement began) to determine the effectiveness of the program (SFBBO 2008). SFBBO counted gulls within three different landfill areas: the active disposal area/working face, the recent disposal area (where refuse had recently been dumped and covered with a thin layer of soil), and the non-disposal area (which consisted of other areas on the site). SFBBO also made behavioral observations; counted gulls on neighboring ponds A18 and A19; and conducted surveys to determine the responses of gulls to specific abatement events. Gull surveys were conducted between 26 February 2007 and 31 December 2008, encompassing periods both before and after intensive abatement began, to determine the effectiveness of gull abatement efforts.

SFBBO recorded a total of 549,668 observations of gulls using the Newby Island Landfill during 369 surveys between 26 February 2007 and 31 December 2008, representing a mean of nearly 1500 gulls/survey. However, the number of gulls using the landfill was significantly lower after the initiation of gull abatement activities than during the same month in 2007, prior to the implementation of the abatement program. For example, mean numbers of gulls per survey observed on the ground during the summer months, when most gulls using the landfill are locally breeding California gulls, declined from approximately 900, 1000, and 1250 in June, July, and August 2007 to 250-300 during each of those months in 2008. During the fall and early winter months, when several species of gulls use the landfill, mean counts of gulls on the ground per survey ranged from approximately 1600 to 3200 in 2007 but remained below 500 in 2008, after the gull abatement program was initiated.

Flocking species such as European starlings (*Sturnus vulgaris*), Brewer's blackbirds (*Euphagus cyanocephalus*), red-winged blackbirds (*Agelaius phoeniceus*), and brown-headed cowbirds (*Molothrus ater*) also forage in and around the active area of the landfill. Turkey vultures (*Cathartes aura*), black-crowned night herons (*Nycticorax nycticorax*), American crows (*Corvus brachyrhynchos*), and common ravens (*Corvus corax*) forage at the active face of the Newby Island Landfill as well. Nuisance mammal species such as Norway rats (*Rattus norvegicus*), black rats (*Rattus rattus*), Virginia opossums (*Didelphis virginiana*), raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and feral cats (*felis catus*) typically feed on discarded food and other waste at landfill sites, especially at night when these animals are most active.

Developed

Vegetation. A combination of developed areas (with some planted, ornamental vegetation), bare ground, hardscape, compacted gravel, stockpiled waste disposal and recycling equipment, and piles of recyclable materials occupy large areas of the project site. The majority of the developed areas occur within the D-shaped area and roads leading to the portions of the landfill that are in active use. The landfill gas flare is also within the developed area of the site. Developed areas near the "D-shaped area" are lined with ornamental trees, as is the area east of the Recyclery and along the main entrance road to the active landfill, including the area adjacent

to the scales. These areas are landscaped with such ornamental species as Monterey pine trees (*Pinus radiata*), palm trees (*Washingtonia* sp.), cypress trees (*Cupressus* sp.), and oleander (*Nerium oldeander*), among others, which are the only trees on the project site; many of these trees appear to be of ordinance size (see *Regulated Habitats* section). A large area of compacted fill hardscape is being used to store and process a variety of raw fill material (not refuse) and recyclable building materials (i.e., asphalt, concrete, wood). This area, referred to as the Construction & Demolition Recycling area (C & D area), is leveled and sprayed with water on a continual basis, and is devoid of vegetation.

Wildlife. Relatively few wildlife species can tolerate the intensive disturbance that occurs within the developed areas on the project site. However, gulls regularly forage on food waste in temporary outdoor storage "piles" at the Recyclery and roost on the Recyclery roof during the day, particularly in the non-breeding seasons. European starlings, Brewer's blackbirds, and American crows also forage in these areas.

A few bird species likely nest in and around the structures on the site; these include the native house finch, mourning dove (*Zenaida macroura*), barn swallow (*Hirundo rustica*), and black phoebe (*Sayornis nigricans*) and non-native European starling, rock pigeon (*Columba livia*), and house sparrow (*Passer domesticus*). The high level of human activity associated with this site likely precludes nesting by raptors in the small ornamental trees present on the site.

Several introduced species are expected to be attracted by the food waste at the Recyclery. These include house mice and Norway rats, feral cats, Virginia opossums, and red foxes (*Vulpes vulpes*). Native mammals such as striped skunks and raccoons also forage here. In addition to the available food resources at this site, piles of recyclable materials provide cover for some of these species. Most of these animals are nocturnal, and therefore activity during business hours is not expected to preclude their scavenging at the site at night.

Tidal Brackish Marsh

Vegetation. Tidal brackish marsh habitat is located adjacent to all areas of the project site,. The majority of these areas surrounding the landfill (along South Coyote Slough, within Coyote Creek, and west of the landfill) are dominated by California bulrush (*Schoenoplectus californicus*, formerly *Scirpus californicus*) and tule (*Scirpus robustus*), forming thick, impenetrable marsh habitat. These areas transition into ruderal grassland habitat on the landfill side of the marsh. North of the D-shaped area, cattail (*Typha latiflora*) dominates more freshwater areas, although sparse pickleweed (*Sarcocornia pacifica*) and alkali heath (*Frankenia grandifolia*), which are typical of more saline habitats, also occur. Finally, areas adjacent to the bulrush habitat on the north side of the landfill are dominated by pickleweed, with patches of rabbitsfoot grass (*Polypogon monspeliensis*), saltgrass (*Distichlis spicata*), and spearscale (*Atriplex triangularis*). Some areas of bare soil, open water, and channels (e.g., in South Coyote Slough and Coyote Creek) are also present in this habitat type.

Wildlife. The Alameda song sparrow (*Melospiza melodia pusillula*), marsh wren (*Cistothorus palustris*), and San Francisco common yellowthroat (*Geothlypis trichas sinuosa*) forage and breed in this brackish tidal habitat. Common yellowthroats in particular are more restricted to brackish marshes, whereas marsh wrens can utilize a wider variety of wetland types. California

clapper rails (*Rallus longirostris obsoletus*) have been recorded in salt/brackish transitional marshes and several brackish, alkali bulrush-dominated marshes bordering Coyote Creek and South Coyote Slough. Waders such as the black-crowned night-heron, snowy egret (*Egretta thula*), and great egret (*Ardea alba*) forage in tidal brackish marshes, and a breeding colony of these large waders formerly occurred approximately 100 m to the north of the landfill, in the adjacent Coyote Creek Lagoon; the current status of this colony is unknown. Raptors such as the white-tailed kite and northern harrier nest and forage in and around these marshes. A number of waterbird species forage within this habitat and shorebirds such as American avocets (*Recurvirostra americana*) and willets (*Catoptrophorus semipalmatus*) were observed foraging at the edge of the tidal marsh channels during the reconnaissance-level surveys. Dabbling ducks such as mallards (*Anas platyrhynchos*) and gadwall (*Anas strepera*) frequently forage in tidal channels and nest in higher-elevation marshes, especially where marshes transition to grasslands.

These brackish marshes provide some pickleweed habitat for the federally endangered salt marsh harvest mouse (*Reithrodontomys raviventris*), which is known to occur to the southeast of the site. Other mammals expected in this habitat include the California vole, western harvest mouse (*Reithrodontomys megalotis*), house mouse, and saltmarsh wandering shrew (*Sorex vagrans halicoetes*).

Gopher snakes, garter snakes (*Thamnophis* spp.), and Pacific treefrogs (*Pseudacris regilla*) occur in the upper portions of these marshes. A number of fish species occur in the Coyote Creek channel. Central California Coast steelhead (*Oncorhynchus mykiss*) and fall-run Chinook salmon (*Oncorhynchus tshawytscha*) occur in this reach of Coyote Creek during migration to and from spawning areas upstream. Other fish that may occur in Coyote Creek and South Coyote Slough adjacent to the site include staghorn sculpin (*Leptocottus armatus*), starry flounder (*Platichthys stellatus*), shiner perch (*Cymatogaster aggregata*), northern anchovy (*Engraulis mordax*), and non-native species such as largemouth bass (*Micropterus salmoides*), green sunfish (*Lepomis cyanellus*), and bluegill (*L. macrochirus*).

Aquatic (Landfill Retention Basins)

Vegetation. Two retention basins (a stormwater retention pond and one compost stormwater retention pond) are located centrally near the southern boundary of the landfill, and a second compost stormwater retention basin is located near the western boundary of the landfill. Stormwater runoff from the windrow areas is conveyed via drainage swales and ditches to adjacent compost stormwater retention ponds. The runoff from the compost runoff retention ponds is used to water the compost windrows or for dust control on the compost windrow pads. Stormwater from the C&D area flows to the main stormwater retention pond where it is discharged to South Coyote Slough. Runoff from the D-shaped area, Recyclery and greenwaste and grinding area is conveyed into storm drain lines and vegetated swales to the main retention pond then discharged into South Coyote Slough. These three basins collect runoff from the landfill, which is probably very low in water quality. No wetland vegetation or hydrophytic vegetation was observed within these retention basins.

Wildlife. Due to the small size of these basins and their proximity to intensive disturbance at the landfill, few waterbirds other than gulls, which bathe and roost in these basins, are expected to occur in this habitat in large numbers. Small numbers of shorebirds such as the killdeer

(*Charadrius vociferus*), greater yellowlegs (*Tringa melanoleuca*), and black-necked stilt (*Himantopus mexicanus*), and dabbling ducks such as the mallard and gadwall, are likely to forage here occasionally when human disturbance levels are low.

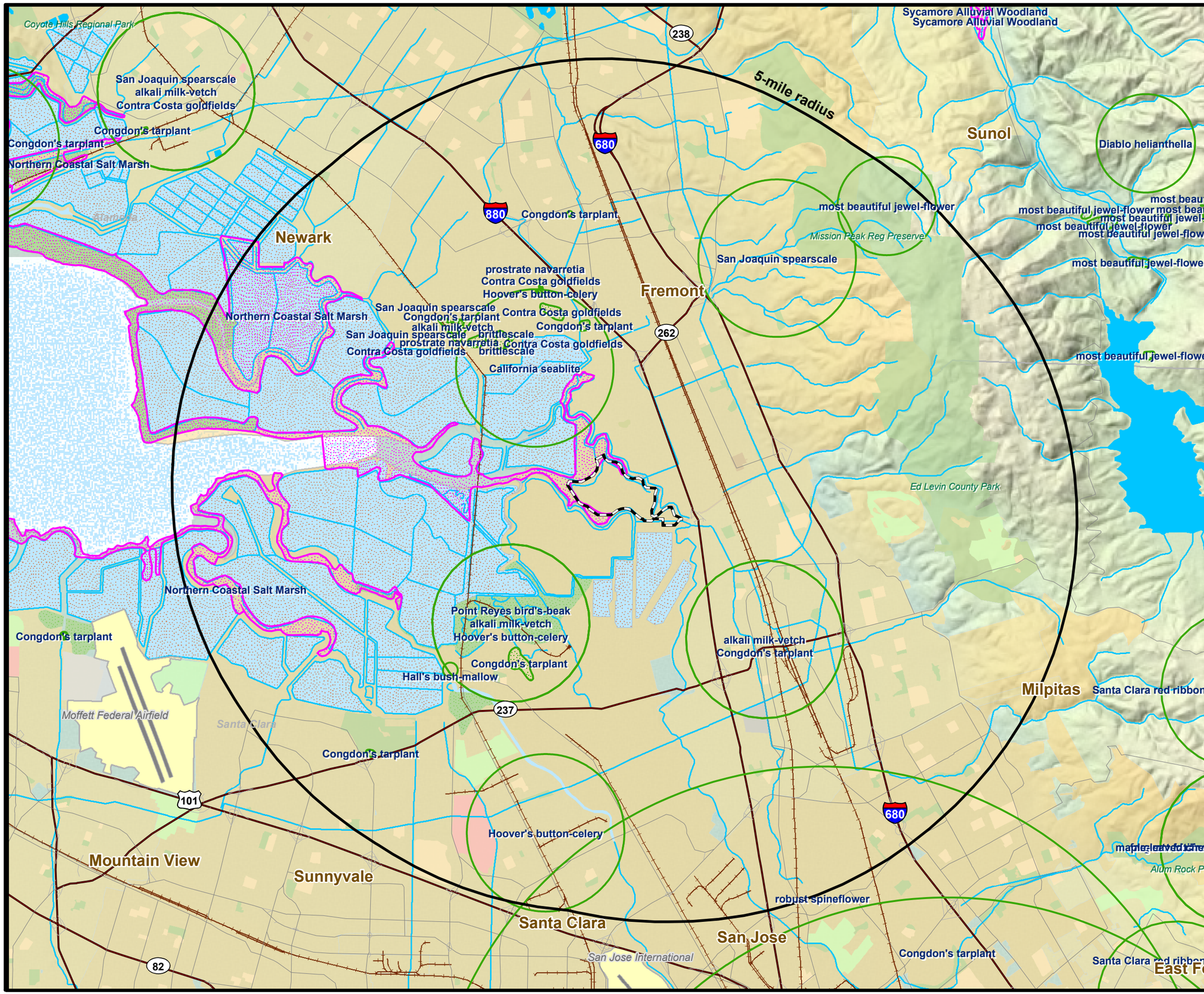
SPECIAL-STATUS SPECIES AND SENSITIVE HABITATS

Special-status Plant Species

Reconnaissance-level surveys were conducted on 24 March 2008 for habitats capable of supporting special-status plant species. Prior to the site surveys, information concerning the known distribution of threatened, endangered, or other special-status plant species with potential to occur in the area was collected from several sources and reviewed. These sources included the CDFG's Natural Diversity Database (CNDDB 2008; Figure 3a) and information available through the USFWS, CDFG, and technical publications. The California Native Plant Society's (CNPS's) *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2008) and *The Jepson Manual* (Hickman 1993) supplied information regarding the distribution and habitats of vascular plants in the vicinity.

A query of special-status plants in the CNDDB was performed for the USGS Milpitas topographical quadrangle in which the project site occurs, as well as the eight quadrangles surrounding the project site. The CNPS inventory was then queried to produce a similar list for Santa Clara County. The specific habitats included in the query were valley and foothill grassland and marshes and swamps. These habitats were selected based on the similarity of their constituent species to those occurring on the project site. The habitat requirements of each special-status plant species were the principal criteria used for inclusion in the list of species potentially occurring on the site.

Many of the special-status plant species that occur in Santa Clara County are associated with habitat or soil types that did not occur on the project site historically, or no longer occur on the project site due to the extensive removal of soil and addition of fill material. Such habitats and soil types that are absent from the project site include serpentine soils, strongly alkaline soils, clay soils, vernal pool habitat, and cismontane woodland habitat. Additionally, many of the species identified as potentially occurring in the area occur at much higher elevations than are present at the project site. The only native habitat remaining on the site is outside of any potential impact area and occurs at approximately sea level. Forty-three species associated with valley and foothill grassland or marsh and swamp habitats were analyzed, none of which were identified as potentially occurring in the project vicinity. CNDDB (2008; Figure 3a) records list 12 species as occurring within 5 mi (8 km) of the project site: San Joaquin spearscale (*Atriplex joaquiniana*), brittlescale (*Atriplex depressa*), Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), most beautiful jewel-flower (*Streptanthus albidus* ssp. *peramoenus*), robust spineflower (*Chorizanthe robusta* var. *robusta*), Contra Costa goldfields (*Lasthenia conjugens*), alkali milk-vetch (*Astragalus tener* var. *tener*), prostrate navarretia (*Navarretia prostrata*), Hoover's button-celery (*Eryngium aristulatum var. hooveri*), California seablight (*Suaeda californica*), Hall's bush mallow (*Malacathamnus hallii*), and Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*). After adding any of these species that occur within 5 miles of the project site to the list acquired through CNPS queries, a total of 48 special-status



CNDDB Legend

Plants

- Specific Location
- Approximate Location
- General Area

Terrestrial Communities

- General Area
- Project Boundary

N

0 1.2 2.4

Miles

H. T. HARVEY & ASSOCIATES

ECOLOGICAL CONSULTANTS

Newby Island Landfill Planned Development EIR: CNDDB Plant Records

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species were considered for occurrence on the project site. All 48 species were rejected from consideration due to the degraded nature of habitat on the site, the lack of associated native species, and/or the absence of specific microhabitat variables such as soil type, elevation, or hydrology (Appendix A). Both Congdon's tarplant and San Joaquin spearscale can occur on disturbed soils, typically on alkaline soils within moist areas, and both species are known to occur within several miles to the north of the site on Refuge land in Fremont. Although some of the natural soils on the landfill site are alkaline in nature (Campbell silty clay loam), these areas are now covered in fill material and actively disturbed/cleared. Reconnaissance surveys did not observe either species on-site. In addition, it has been our experience that, should these species move into an area (through introduced seed present in fill material or through dispersal), without suitable alkaline soils in moist areas, they do not persist. As a result, if either species were to disperse to impact areas on the site, they would not become established due to the combination of the lack of native alkaline soils and heavy disturbance from ongoing landfill activities. As such, no suitable habitat for any of the 48 special-status plant species considered for occurrence within the project site occurs on-site within the project's impact areas, and none of these species are likely to occur within degraded areas immediately adjacent to the project site. Therefore, no further surveys for special-status plant species are required.

SPECIAL-STATUS WILDLIFE SPECIES

Surveys were conducted on the project site on 24 March 2008 for habitats capable of supporting special-status wildlife species. Prior to the site surveys, information concerning the known distribution of threatened, endangered, or other special-status wildlife species with potential to occur in the area was collected from multiple sources and reviewed. The sources included the CDFG's Natural Diversity Database (CNDDB 2008; Figure 3b) and a list of special-status species for the Milpitas quadrangle generated through the USFWS website (http://www.fws.gov/sacramento/es/spp_lists/auto_list_form.cfm). CNDDB was queried for occurrences of special-status wildlife species within the USGS Milpitas topographic quadrangleand the eight surrounding quadrangles. The specific habitat requirements and the location of known occurrences of each special-status wildlife species were the principal criteria used for inclusion in the list of species potentially occurring on the site (Table 1).

In addition, we reviewed the results of previous surveys conducted by H. T. Harvey & Associates for special-status species in the site vicinity. These include California clapper rail surveys along South Coyote Slough and Warm Springs Marsh (H. T. Harvey & Associates 1989, 1990a, 1990b, 2007). Salt marsh harvest mouse studies were conducted in Warm Springs Marsh, Coyote Creek Reach 1A, and at the Dixon Landing Road Site (H. T. Harvey & Associates 1990c 1997, 2000, 2007).

The project site is outside the known range of, or lacks suitable habitat for, several special-status species that occur elsewhere in the region. These species include the California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), vernal pool tadpole shrimp (*Lepidurus packardi*), western pond turtle (*Actinemys marmorata*), coho salmon (*Oncorhynchus kisutch*), green sturgeon (*Acipenser medirostris*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and San Francisco dusky footed woodrat (*Neotoma fuscipes annectens*). Several special-status wildlife species, including the California black rail (*Laterallus jamaicensis coturniculus*), California least tern (*Sterna antillarum browni*),

and western snowy plover (*Charadrius alexandrinus nivosus*), may forage near the site, but are extremely unlikely to occur on the site itself, and would not breed close enough to the site to be disturbed by the project.

Other special-status species may occur on or immediately adjacent to the project site only as uncommon to rare visitors, migrants, or transients, but they are not expected to breed on the site or to use the site in large numbers; these include the American peregrine falcon (*Falco peregrinus anatum*), short-eared owl (*Asio flammeus*), bank swallow (*Riparia riparia*), yellow warbler (*Dendroica petechia*), tricolored blackbird (*Agelaius tricolor*), and western red bat (*Lasiurus blossevillii*).

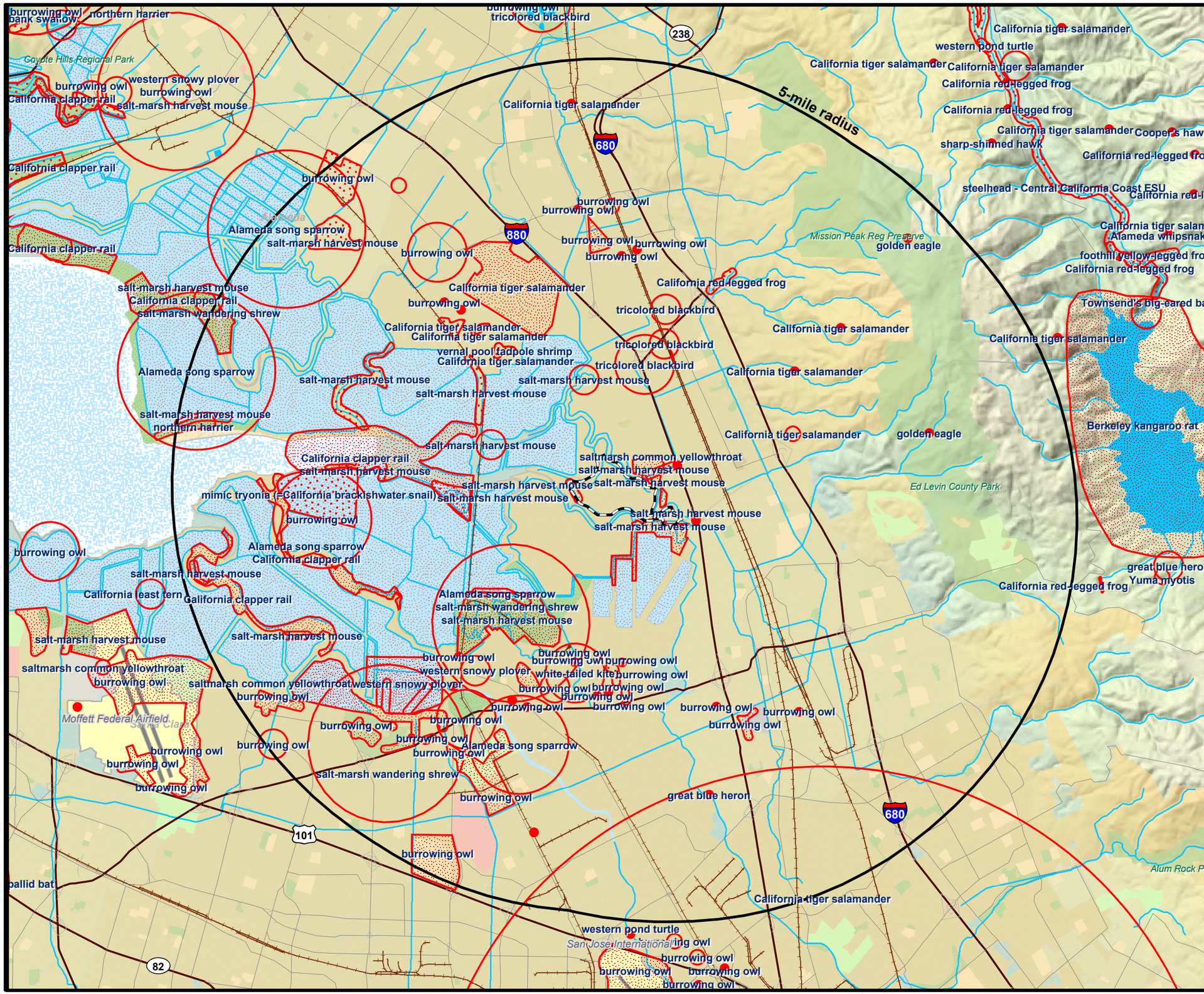
More detailed discussion is provided below for those special-status species for which suitable breeding habitat is present on or immediately adjacent to the site, including the white-tailed kite, northern harrier, California clapper rail, burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), San Francisco common yellowthroat, Alameda song sparrow, Bryant's savannah sparrow, salt marsh harvest mouse, and salt marsh wandering shrew. Detailed discussion is also provided for the Central California Coast steelhead and fall-run Chinook salmon, which occur in Coyote Creek immediately adjacent to the site.

Federal or State Endangered or Threatened Species

Steelhead (*Oncorhynchus mykiss*), Central California Coast Distinct Population Segment (DPS). Federal Listing Status: Threatened; State Listing Status: None. The steelhead is an anadromous form of rainbow trout that migrates upstream from the ocean to spawn. Steelhead in the South Bay usually migrate upstream to spawning areas from late December through early April, with the greatest activity in January through March, when flows are sufficient to allow them to reach suitable habitat in far upstream areas. Spawning occurs between December and June. Steelhead eggs remain in gravel depressions, known as redds, for 1.5 to four months before hatching. After hatching, young steelhead use the deeper reaches of streams as rearing areas, and will remain in freshwater for one to four years before migrating to the ocean. This downstream migration of juveniles generally occurs between February and May. Unlike other anadromous salmonids, steelhead do not necessarily die after spawning. Many adults survive and return to the ocean after spawning, coming back to spawn for one or more additional seasons.

Steelhead are known to occur in several stream systems in the South San Francisco Bay Area, including the Coyote Creek watershed. Suitable spawning habitat is not located in or near the reach of Coyote Creek near the Newby Island Landfill, but this species moves through sloughs between the bay and spawning streams (e.g., Coyote Creek/Slough), and steelhead are present in the reach of Coyote Creek adjacent to the project site during migration.

California Clapper Rail (*Rallus longirostris obsoletus*). Federal Listing Status: Endangered; State Listing Status: Endangered. The California clapper rail is a secretive marsh bird currently endemic to the marshes of San Francisco Bay. California clapper rails nest in salt and brackish marshes along the edge of the bay, and are most abundant in extensive salt marshes and brackish marshes dominated by cordgrass (*Spartina foliosa*), pickleweed, and marsh



CNDDB Legend

Animals

- Specific Location
- Approximate Location
- General Area
- Project Boundary

N

0 1.2 2.4

Miles

H. T. HARVEY & ASSOCIATES

ECOLOGICAL CONSULTANTS

Newby Island Landfill Planned Development EIR: CNDDB Animal Records

Proj No. 2843-01	Date Sept. 2009	Figure 3b
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Table 1. Special-status Wildlife Species, Their Status, and Potential Occurrence on the Newby Island Landfill Project Site.			
NAME	***STATUS**	**HABITAT**	**POTENTIAL FOR OCCURRENCE ON SITE**
Federal or State Endangered and Threatened Species			
Vernal Pool Tadpole Shrimp (*Lepidurus packardi*)	FE	Vernal pools and swales containing clear to highly turbid water.	No suitable habitat on the project site; no stable pools are present and the site is highly disturbed in most places. Presumed absent.
Steelhead (Central California Coast Distinct Population Segment [DPS]) (*Oncorhynchus mykiss*)	FT, ST	Streams with dense canopy cover that provides shade, woody debris, and organic matter, and are usually free of rooted or aquatic vegetation.	A steelhead run exists in Coyote Creek, adjacent to project site; steelhead may occur in this reach of the creek during migration to and from upstream spawning areas.
Coho Salmon (Central California Coast Evolutionary Significant Unit [ESU]) (*Oncorhynchus kisutch*)	FE, SE	Cool streams that reach the ocean and that have shallow partially shaded, pools, riffles, and runs. San Francisco Bay tributaries.	Outside known range (extirpated from South Bay); determined to be absent.
Green Sturgeon (*Acipenser medirostris*)	`FT	Spawn in freshwater tributaries of the Sacramento River and river systems farther north, forage in riverine, estuarine, and marine habitats.	Apparently very rare anywhere in the South Bay; does not spawn in Coyote Creek or other South Bay streams, and therefore not expected to occur in the reach of Coyote Creek adjacent to the project site.
California Red-legged Frog (*Rana aurora draytonii*)	FT, SP, CSSC	Streams, freshwater pools and ponds with overhanging vegetation	No suitable habitat on the project site. No suitable habitat connectivity to known populations. Presumed absent.
California Tiger Salamander (*Ambystoma californiense*)	FT, CSSC	Vernal or temporary pools in annual grasslands, or open stages of woodlands.	No suitable habitat on the project site. No suitable habitat connectivity to known populations. Presumed absent.
American Peregrine Falcon (*Falco peregrinus anatum*)	SE, SP	Forages in many habitats; requires cliffs for nesting.	Occasional forager on site. Several pairs nest in old raven nests on electrical towers in the South Bay, but no such nests were observed on towers on the site, and the species does not breed on site.
Western Snowy Plover (*Charadrius alexandrinus nivosus*)	FT, CSSC	Sandy beaches along shorelines, salt pans, and salt ponds.	No suitable nesting or foraging habitat on site. Marginal foraging habitat is present in adjacent tidal channels. However, due to the limited nature of these flats, snowy plovers are not expected to forage frequently in these habitats, and no suitable nesting habitat is present on or immediately adjacent to the site. Known to nest as close as Salt Pond A22, approximately 1.5 mi northwest of the site.

Table 1. Special-status Wildlife Species, Their Status, and Potential Occurrence on the Newby Island Landfill Project Site.			
NAME	***STATUS**	**HABITAT**	**POTENTIAL FOR OCCURRENCE ON SITE**
California Clapper Rail (*Rallus longirostris obsoletus*)	FE, SE	Tidal salt marsh dominated by cordgrass and pickleweed; occasionally occurs in brackish marshes.	Suitable foraging and breeding habitat exists in tidal marshes and tidal channels adjacent to (and in a few areas barely extending onto) the project site. Surveys in 1990 detected clapper rails along upper Coyote Slough and in the Warm Springs marshes immediately to the west and south of the project site, and incidental observations have verified their occasional presence in these areas since 1990. Not recorded in these areas during focused surveys in 1989 or 2006, and occurrence/abundance in these brackish marshes may be sporadic.
California Black Rail (*Laterallus jamaicensis coturniculus*)	ST	Fresh, saline, and brackish marshes.	Tidal marshes adjacent to (and in a few areas barely extending onto) the project site provide only marginal foraging habitat due to their limited extent. This species occurs in the South Bay only as a rare migrant and winter visitor, and it is likely absent from the project site.
California Least Tern (*Sternula antillarum browni*)	FE	Nests colonially on sandy beaches, alkali flats, salt ponds, and paved areas. Forages in bay, sloughs, and tidal channels.	No suitable habitat on project site. May occasionally forage in adjacent tidal channels, though there are no records of occurrence in the immediate site vicinity.
Bank Swallow (*Riparia riparia*)	ST	Nests colonially on vertical banks near streams or other water bodies.	No suitable breeding habitat on the project site. May occur as a rare migrant. Presumed absent.
Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*)	FE, SE	Pickleweed in saline emergent wetlands.	Suitable habitat exists in salt marsh habitats adjacent to (and in a few areas barely extending onto) the project and salt marsh harvest mice have been captured to the east, south, and southeast of the project.
California Species of Special Concern			
Central Valley Fall-Run Chinook Salmon ESU (*Oncorhynchus tshawytscha*)	CSSC	Cool rivers and large streams that reach the ocean and that have shallow, partly shaded pools, riffles, and runs.	Known to occur in Coyote Creek, although it is unknown whether a viable breeding population is present there. Individuals occur in this reach of the creek during migration to (adults) and from (juveniles) upstream spawning areas.
Western Pond Turtle (*Actinemys marmorata*)	CSSC	Permanent or nearly permanent water in a variety of habitats.	Rarely occurs in tidal waters. Likely absent from the site and its vicinity.
Northern Harrier (*Circus cyaneus*)	CSSC	Nests in extensive grassland or tall wetland vegetation, forages in a variety of open habitats.	Breeds in tidal marshes adjacent to site and forages on site in vegetated portions of the landfill.

Table 1. Special-status Wildlife Species, Their Status, and Potential Occurrence on the Newby Island Landfill Project Site.			
NAME	***STATUS**	**HABITAT**	**POTENTIAL FOR OCCURRENCE ON SITE**
Burrowing Owl (*Athene cunicularia*)	CSSC	Nests and roosts in burrows, usually of ground squirrels, in grasslands and ruderal habitats.	Known to occur in the site vicinity. Burrowing Owls may forage and possibly breed on the site, although they have not been observed there.
Short-eared Owl (*Asio flammeus*)	CSSC	Requires tall emergent vegetation or grasses for mating.	Possibly a rare forager during the non-breeding season, but not expected to breed on or near the site, as this species has not been recorded nesting in the South Bay in decades.
Loggerhead Shrike (*Lanius ludovicianus*)	CSSC	Nests in tall shrubs and dense trees, forages in grasslands, marshes, and ruderal habitats.	Ornamental trees and shrubs provide potential breeding sites, and the species is expected to breed and forage on the site in small numbers (i.e., up to 2 or 3 pairs).
Yellow Warbler (*Dendroica petechia*)	CSSC	Nests in riparian habitat, forages in a variety of habitats.	No suitable nesting habitat on site, but forages on site during migration.
San Francisco Common Yellowthroat (*Geothlypis trichas sinuosa*)	CSSC	Breeds in fresh and salt marshes and riparian habitats around South San Francisco Bay where there is thick foraging cover; breeds in tall grass, tules, and willows.	Forages and breeds in brackish/salt marshes habitats along Coyote Creek and South Coyote Slough adjacent to (and in a few areas barely extending onto) the project site.
Alameda Song Sparrow (*Melospiza melodia pusillula*)	CSSC	Breeds and forages primarily in salt marsh habitats in the South San Francisco Bay.	Song Sparrows forage and breed in brackish/salt marshes habitats along Coyote Creek and South Coyote Slough adjacent to (and in a few areas barely extending onto) the project site. Whether these birds are of the race *pusillula* or the more widespread race *gouldii* is unknown, but *pusillula* is likely represented on-site.
Bryant's Savannah Sparrow (*Passerculus sandwichensis alaudinus*)	CSSC	Breeds and forages in grasslands and high-marsh habitat in the San Francisco Bay area and along the central and northern California coast.	Forages, and likely breeds, in high-marsh habitat on and adjacent to the site, and possibly in ruderal vegetation on the temporarily inactive portions of the landfill.
Tricolored Blackbird (*Agelaius tricolor*)	CSSC	Breeds near fresh water in dense emergent vegetation.	May occasionally forage on site. Not expected to breed on site, as this species does not typically nest in tidal or brackish marshes, and there are no records of breeding in the immediate vicinity of the site.
Pallid Bat (*Antrozous pallidus*)	CSSC	Forages over many habitats; roosts in buildings, rocky outcrops and rocky crevices in mines and caves.	Unlikely forager; no roosting habitat on site. Presumed absent.

Table 1. Special-status Wildlife Species, Their Status, and Potential Occurrence on the Newby Island Landfill Project Site.			
NAME	***STATUS**	**HABITAT**	**POTENTIAL FOR OCCURRENCE ON SITE**
Western Red Bat (*Lasiurus blossevillii*)	CSSC	Migratory species that typically breeds in old growth riverine habitats such as areas in the Central Valley. Solitary and roosts in the foliage of deciduous trees in riparian areas and sometimes orchards.	May occasionally forage over site, but unlikely to roost on the site due to the absence of suitable roost sites.
Townsend's Big-eared Bat (*Corynorhinus townsendii*)	CSSC	Forages in a variety of habitats; roosts in open.	Unlikely forager; no roosting habitat on site. Presumed absent.
Saltmarsh Wandering Shrew (*Sorex vagrans halicoetes*)	CSSC	Pickleweed-dominated salt marsh.	Potential habitat occurs in the muted tidal salt marsh and pickleweed/cattail marsh in adjacent areas. Distribution poorly known, but may occur in these areas.
San Francisco Dusky Footed Woodrat (*Neotoma fuscipes annectens*)	CSSC	Forest habitats with moderate to dense understory.	No suitable habitat on the project site. Presumed absent.
State Protected Species			
White-tailed Kite (*Elanus caeruleus*)	SP	Forages in open areas of many habitats.	Forages on site, and likely nests in coyote brush near the site. Frequent disturbance limits the probability of nesting on site, but nesting could occur.

***LISTING STATUS**

FE	=	Federally listed Endangered
FT	=	Federally listed Threatened
SE	=	State listed Endangered
ST	=	State listed Threatened
CSSC	=	California Species of Special Concern
SP	=	State Protected Species

gumplant (*Grindeli stricta*), and containing complex networks of tidal channels. Although clapper rails are typically found in tidal salt marshes, they have also been documented in brackish marshes in the South Bay.

Although habitat on the majority of the Newby Island Landfill is not suitable for clapper rails due to the absence of marsh habitats within the site, there is suitable habitat immediately adjacent to (and barely extending up onto) the project site in Coyote Creek and South Coyote Slough. Surveys conducted during the 1990 breeding season (H. T. Harvey & Associates 1990a) and winter season (H. T. Harvey & Associates 1990b) revealed a number of California clapper rails occupying salt/brackish transitional marshes and several brackish, alkali bulrush-dominated marshes bordering Coyote Creek and South Coyote Slough. All these rails were in the broader marshes south and west of the western portion of the landfill. Incidental observations of California clapper rails in South Coyote Slough by H. T. Harvey & Associates biologists confirm the presence of the species in this area, at least occasionally, during the 1990s. In contrast, focused surveys of these marshes in 1989 and 2006 (H. T. Harvey & Associates 1989, 2007) did not detect any clapper rails. Therefore, although the species uses these marshes, their occurrence and abundance may fluctuate. The proposed project will not expand into suitable clapper rail habitat.

Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*). Federal Listing Status: Endangered; State Listing Status: Endangered, Protected. The salt marsh harvest mouse is found only in saline wetlands of San Francisco Bay and its tributaries. The southern subspecies *R. r. raviventris* is restricted to an area from San Mateo County and Alameda County along both sides of San Francisco Bay south to Santa Clara County. The salt marsh harvest mouse occurs with the closely related, ubiquitous and abundant western harvest mouse (*R. megalotis*) at upper edges of marshes and in marginal areas. Both animals occur in pickleweed, but the salt marsh harvest mouse replaces the western harvest mouse in denser areas of pickleweed. Populations of *R. raviventris* have declined substantially in recent decades. This decline is due primarily to diking and filling of marshes, subsidence, and changes in salinity brought about by increasing volumes of fresh water discharge into the bay.

Although habitat within the majority of the project area is not suitable for salt marsh harvest mice due to the absence of pickleweed and bulrush-dominated marsh, there is suitable habitat in areas immediately adjacent to (and barely extending up onto) the project site. Salt marsh harvest mice have been captured to the east of Coyote Creek and north of Dixon Landing Road, east of the landfill, and southeast of the landfill (H. T. Harvey & Associates 1990c 1997, 2000, 2007). The proposed project will not expand into suitable salt marsh harvest mouse habitat.

California Species of Special Concern

Chinook Salmon (*Oncorhynchus tshawytscha*), Central Valley Fall Run Evolutionarily Significant Unit (ESU). Federal Listing Status: Candidate; State Listing Status: Species of Special Concern. Like the steelhead, the Chinook salmon is an anadromous salmonid. Adults of the Central Valley Fall Run ESU migrate from the ocean to spawning streams in late fall and begin spawning in beds of coarse river gravels between October and December. Adults die after spawning. After the eggs hatch, some juvenile salmon migrate downstream to the Bay or ocean within a few months, while others may remain in freshwater rearing areas for up to a year in

some systems. Young fish remain in the ocean for several years before returning to freshwater streams and rivers to spawn. Chinook salmon generally spawn in cool waters providing incubation temperatures no warmer than 55° F.

Chinook salmon did not historically spawn in streams flowing into South San Francisco Bay. Since the mid-1980s, however, small numbers of fall-run Chinook salmon, probably strays from Central Valley runs, have been found in several such streams, including Coyote Creek, Los Gatos Creek, and the Guadalupe River. Suitable spawning habitat is not located in or near the reach of Coyote Creek near the Newby Island Landfill, but this species moves through sloughs between the bay and spawning streams (e.g., Coyote Creek/Slough), and Chinook salmon are present in the reach of Coyote Creek adjacent to the project site during migration. In at least some areas, juvenile Chinook make heavy use of estuarine habitats as well, and if the species spawns successfully in Coyote Creek (which has not been well documented), juveniles could forage in the reach near the project site.

Northern Harrier (*Circus cyaneus*). Federal Listing Status: None; State Listing Status: Species of Special Concern (nesting). The northern harrier is a raptor commonly found in open grasslands, agricultural areas, and marshes. Nests are built on the ground in areas where long grasses or marsh plants provide cover and protection. Harriers hunt for a variety of prey, including rodents, birds, frogs, reptiles, and insects by flying low and slowly in a traversing manner. Northern harriers are considered Species of Special Concern in California only at nesting sites.

This species is a common forager over San Francisco Bay marshes and extensive areas of ruderal habitat immediately surrounding the bay, particularly during the non-breeding season when migrant and wintering birds augment the local resident population. Harriers are not expected to nest on the Newby Island Landfill site since the site does not include extensive marshes, but it could breed in marshes immediately adjacent to the site. Harriers forage on the landfill.

Burrowing Owl (*Athene cunicularia*). Federal Listing Status: None; State Listing Status: Species of Special Concern. The burrowing owl is a small, terrestrial owl of open country. These owls prefer annual and perennial grasslands, typically with sparse or nonexistent tree or shrub canopies. In California, burrowing owls are found in close association with California ground squirrels. Owls use the abandoned burrows of ground squirrels for shelter and nesting. Burrowing owl populations are thought to be declining throughout much of their range in the United States. Loss of habitat and campaigns against the burrowing mammals upon which burrowing owls depend for nesting habitat are suspected causes of this decline. The Bay Area burrowing owl population is estimated to have lost 61% of its nesting colonies since the late 1980's (DeSante and Ruhlen 1995). The South Bay region (from San Mateo on the Peninsula and Alameda County on the East Bay) supports the state's fourth largest discrete population.

No evidence of burrowing owls or California ground squirrels were observed on the site during the reconnaissance-level surveys conducted for the project. However, no focused surveys were conducted, and the ruderal portions of the project sites would be suitable for burrowing owls if ground squirrels are present. This species is known to occur in some numbers in the grasslands and ruderal habitats approximately 2 mi south and southeast of the site, and therefore burrowing

owls may occur on the site as occasional foragers, or as breeders in the ruderal grassy areas that have been undisturbed.

Loggerhead Shrike (*Lanius ludovicianus*). Federal Listing Status: None; State Listing Status: Species of Special Concern. The loggerhead shrike is a predatory songbird that prefers open habitats interspersed with shrubs, trees, poles, fences, or other perches from which it can hunt. Nation-wide, loggerhead shrike populations have declined significantly over the last 20 years. Loggerhead shrikes are still fairly common in portions of California, but they have disappeared from some parts of the Bay Area in recent decades, even in areas where no obvious habitat degradation has occurred. Nests are built in densely foliated shrubs or trees, often containing thorns, which offer protection from predators and upon which prey items are impaled.

Loggerhead shrikes may forage in the ruderal habitats on the Newby Island site, and ornamental trees on the site could provide potential nesting sites for the species. At most, 2 or 3 pairs would be expected to breed on the site due to the paucity of trees and shrubs.

San Francisco Common Yellowthroat (*Geothlypis trichas sinuosa*). Federal Listing Status: None; State Listing Status: Species of Special Concern. The San Francisco common yellowthroat inhabits emergent vegetation and breeds in fresh and brackish marshes and associated upland areas in the San Francisco Bay Area. This subspecies is one of the approximately 12 subspecies of common yellowthroat recognized in North America. The San Francisco common yellowthroat breeds from mid-March through early August and pairs frequently raise two clutches per year. Although little is known regarding the movements of this taxon, the wintering areas have been described as coastal salt marshes from the San Francisco Bay region to San Diego County (Grinnell and Miller 1944).

In the South Bay, this species is a fairly common breeder in such habitats virtually wherever they occur, although very small patches of marsh often lack this species. It occurs in fairly large numbers in brackish marsh habitats along Coyote Creek and South Coyote Slough adjacent to, and just barely extending onto, the project site.

Alameda Song Sparrow (*Melospiza melodia pusillula*). Federal Listing Status: None; State Listing Status: Species of Special Concern. The Alameda song sparrow is one of three subspecies of song sparrow breeding only in salt marsh habitats in the San Francisco Bay area. This subspecies is found in marshes bordering the South San Francisco Bay. Here it is most abundant in the taller vegetation found along tidal sloughs, including pickleweed, salt marsh cordgrass and marsh gumplant, nesting from early March to mid-August. Although it is occasionally found in bulrushes in brackish marshes, the Alameda song sparrow is very sedentary and is not known to disperse upstream into freshwater habitats (Basham and Mewaldt 1987). Populations of the Alameda song sparrow have declined due to the loss of salt marshes around the Bay, although within suitable habitat it is still fairly common.

Song sparrows are fairly common breeders in tidal marsh areas adjacent to (and barely extending up onto) the project site. The location of the interface between populations of the Alameda song sparrow and those of the race breeding in freshwater habitats (*M. m. gouldii*) in the vicinity of the project area is not well known due to difficulties in distinguishing individuals of these two

races in the field. However, given that some salt marsh plant species are present on and adjacent to the site, we have assumed that some or all of the song sparrows breeding on the project site represent *pusillula* unless they can be examined in the hand.

Bryant's Savannah Sparrow (*Passerculus sandwichensis alaudinus*). Federal Listing Status: None; State Listing Status: Species of Special Concern. Bryant's savannah sparrow is one of approximately 17 subspecies of savannah sparrows in North America. This race breeds in high salt marsh and grassland habitats in around San Francisco Bay and on the central and northern California coast. Although several subspecies of savannah sparrow occur within this range during the nonbreeding season, Bryant's is the only race that breeds here.

In the South Bay, Bryant's savannah sparrow is a fairly common breeder in high-marsh habitats dominated by pickleweed, saltgrass, and other short-statured vegetation. It also breeds in grasslands adjacent to salt marshes, and in more upland grasslands in hills surrounding the South Bay. The ruderal grassy areas within the less frequently disturbed portions of the landfill, as well as adjacent pickleweed tidal marshes, provide potential nesting habitat, and Bryant's savannah sparrows may forage throughout the project site. However, due to the ongoing landfill disturbance, the numbers breeding on the site are likely low.

Salt Marsh Wandering Shrew (*Sorex vagrans halicoetes*). Federal Listing Status: None; State Listing Status: Species of Special Concern. Formerly more widely distributed in the Bay Area, this small insectivorous mammal is now confined to salt marshes of the South Bay. Salt marsh wandering shrews occur most often in medium-high wet tidal marsh (6 to 8 feet above sea level), with abundant driftwood and other debris for cover. They have also been recorded occasionally in diked marsh. This species is typically found in fairly tall pickleweed, in which these shrews build nests. They breed and give birth during spring, although very little is known regarding the natural history of the species.

This subspecies was formerly recorded from marshes of San Pablo and San Francisco bays in Alameda, Contra Costa, San Francisco, San Mateo, and Santa Clara counties, but captures in recent decades have been very infrequent anywhere in these areas. Shrews are occasionally captured during salt marsh harvest mouse trapping studies, but the difficulty in identifying them to species has precluded a better understanding of the current distribution of this species in the South Bay. It is unknown whether the salt marsh wandering shrew occurs in marshes adjacent to the site, but it could be present in pickleweed-dominated habitats where salt marsh harvest mice occur.

Fully Protected Species

White-tailed Kite (*Elanus leucurus*). Federal Listing Status: None; State Listing Status: Fully Protected. White-tailed kites are raptors that forage for small rodents and other prey, primarily in open grassy or scrubby areas, with low ground cover and variable tree growth. They nest in large shrubs or trees adjacent to this habitat. Nests are built near the tops of trees or tall shrubs in or adjacent to open habitats. Kites prey primarily on small rodents (especially the California vole), but also feed on birds, insects, reptiles, and amphibians. Once considered very rare in California, the white-tailed kite is now fairly common in many areas.

It is unlikely that white-tailed kites nest on the project site, due to the paucity of trees and frequent disturbance. However, kites could nest in trees or shrubs (including larger coyote brush plants) in adjacent habitats, and this species forages on the landfill, especially in the less disturbed, vegetated portions of the site.

Sensitive and Regulated Habitats

U.S. Army Corps of Engineers Jurisdictional Habitats. Areas meeting the regulatory definition of "Waters of the U.S." (jurisdictional waters) are subject to the jurisdiction of the USACE under provisions of Section 404 of the Clean Water Act (1972) and Section 10 of the Rivers and Harbors Act (1899). These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as "Waters of the U.S.," tributaries of waters otherwise defined as "Waters of the U.S.," the territorial seas, and wetlands (termed Special Aquatic Sites) adjacent to "Waters of the U.S." (33 CFR, Part 328, Section 328.3). Wetlands on non-agricultural lands are identified using the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987).

Construction activities within jurisdictional waters are regulated by the USACE. The placement of fill into such waters must comply with permit requirements of the USACE. No USACE permit will be effective in the absence of state water quality certification pursuant to Section 401 of the Clean Water Act. The State Water Resources Control Board is the state agency (together with the Regional Water Quality Control Boards) charged with implementing water quality certification in California.

Reconnaissance-level field surveys for jurisdictional waters on the Newby Island project site were conducted on 24 March 2008 in accordance with USACE regulations and guidelines. Topographically low areas supporting standing water were present in several areas on the site, primarily around detention basins and drainageways that were created to handle runoff from the landfill. The detention basins on-site are man-made, do not support hydrophytic plant species, and are subject to continuous ongoing disturbance as part of the landfill's normal operation. Such features have generally been considered non-jurisdictional by the USACE in the past due to their manmade nature, USACE-authorized fill-material holding area, and ongoing use for construction and operations. Nevertheless, confirmation of a wetland delineation by the USACE would be necessary to ultimately define the limits of the USACE's jurisdiction under Section 404 on this site. Most of the site is surrounded by wetland areas and Section 10 waters (including Coyote Creek); based on the proposed site plan, these areas will not be impacted by the proposed landfill expansion.

State Water Resources Control Board Jurisdiction. The RWQCB is responsible for protecting surface, ground, and coastal waters within its boundaries, pursuant to the Porter-Cologne Water Quality Control Act of the California Water Code. The RWQCB has both federal and state jurisdiction under Section 401 of the Clean Water Act, for activities that could result in a discharge of dredged or fill material to a water body. Federal authority is exercised whenever a proposed project requires a Clean Water Act Section 404 permit from the USACE in the form of a Section 401 Water Quality Certification. State authority is exercised when a

proposed project is not subject to federal authority, in the form of a Notice of Coverage, Waiver of Waste Discharge Requirements. Many wetlands fall into RWQCB jurisdiction, including some wetlands that are not subject to USACE jurisdiction. RWQCB jurisdiction of other waters, such as streams and lakes, extends below the ordinary high water mark.

The RWQCB has no formal technical manual or expanded regulations to help in identifying their jurisdiction. The only guidance can be found in Porter-Cologne Water Quality Control Act, Chapter 2 (Definitions), which states "'Waters of the State' means any surface water or ground water, including saline waters, within the boundaries of the state."

On the Newby Island Landfill project site, all potential USACE jurisdictional areas are also potential Waters of the State. The water detention basins on-site were most likely constructed in filled areas specifically under the permit requirements of the RWQCB to collect surface runoff and are therefore not considered to be Waters of the State.

California Department of Fish and Game Jurisdictional Habitats. The CDFG potentially extends the definition of stream to include "intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams (USGS), and watercourses with subsurface flows. Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife" (CDFG 1994). Such areas on the site were determined using methodology described in *A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607* (CDFG 1994).

Activities that result in the diversion or obstruction of the natural flow of a stream, or which substantially change its bed, channel or bank, or which utilize any materials (including vegetation) from the streambed, may require that the project applicant enter into a Streambed Alteration Agreement with the CDFG.

Reconnaissance-level field surveys were also conducted within the landfill project area. Based on past experience working with CDFG representatives in similar habitats to those encountered on site, it is our determination that there are no channels, drainages, or waterways on or immediately adjacent to the project site that the CDFG would claim under the Fish and Game Code.

Ordinance and Landmark Trees. The City of San Jose recognizes substantial economic, environmental and aesthetic importance of the trees and plantings within the community and protects ordinance sized trees. "Ordinance Sized Tree" means any live or dead woody perennial plant having a main stem or trunk fifty-six inches or more in circumference (18 inches diameter) at a height measured twenty four inches above natural grade slope (SJMC 13.32.20.I).

Development projects should include the preservation of ordinance-sized and other significant trees. Any adverse affect on the health and longevity of native oaks, or ordinance-sized or other significant trees, should be avoided through appropriate design measures and construction practices. When tree preservation is not feasible, the project should include appropriate tree replacement.

Some of the ornamental trees on the site (e.g., Monterey pines) appear to be of ordinance size, although no tree survey was performed as part of this study.

IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

The proposed project may have effects on the biological resources of the project site. The California Environmental Quality Act (CEQA) and the CEQA Guidelines provide guidance in evaluating project impacts and determining which impacts will be significant. CEQA defines "significant effect on the environment" as "a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." Under CEQA Guidelines section 15065 and Appendix G, a project's effects on biotic resources may be significant when the project would:

- "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"
- "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"
- "have a substantial adverse effect on any riparian habitat or other sensitive natural community (e.g., oak woodland) identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service"
- "have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act"
- "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"
- "conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance"
- "conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan"

REGULATORY SETTING

Biological resources are regulated by the following**:**

Federal Endangered Species Act. The federal Endangered Species Act (FESA) protects listed wildlife species from harm or "take" which is broadly defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Take can

also include habitat modification or degradation that directly results in death or injury to a listed wildlife species. An activity can be defined as "take" even if it is unintentional or accidental. Listed plant species are provided less protection than listed wildlife species. Listed plant species are legally protected from take under FESA if they occur on federal lands or if the project requires a federal action, such as a Section 404 fill permit.

The USFWS has jurisdiction over federally listed threatened and endangered species under the FESA. The USFWS also maintains lists of proposed and candidate species. Species on these lists are not legally protected under the FESA, but may become listed in the near future and are often included in their review of a project.

California Endangered Species Act. The California Endangered Species Act (CESA) prohibits the take of any plant or animal listed or proposed for listing as rare (plants only), threatened, or endangered. In accordance with the CESA, CDFG has jurisdiction over state-listed species (California Fish and Game Code 2070). Additionally, the CDFG maintains lists of "species of special concern" that are defined as species that appear to be vulnerable to extinction because of declining populations, limited ranges, and/or continuing threats.

California Environmental Quality Act. Section 15380(b) of the California Environmental Quality Act (CEQA) Guidelines provides that a species not listed on the federal or state lists of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definitions in FESA and CESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species that has not yet been listed by either the USFWS or CDFG.

Clean Water Act. Under Section 404 of the Clean Water Act, the Corps is responsible for regulating the discharge of fill material into waters of the United States. Waters of the U.S. and their lateral limits are defined in 33 CFR Part 328.3 (a) and include streams that are tributary to navigable waters and their adjacent wetlands. Wetlands that are not adjacent to waters of the U.S. are termed "isolated wetlands" and, depending on the circumstances, may also be subject to Corps jurisdiction.

California Water Quality Programs. Pursuant to Section 401 of the federal Clean Water Act, projects that are regulated by the Corps must obtain water quality certification from the RWQCB. This certification ensures that the project will uphold state water quality standards. The RWQCB may impose mitigation requirements even if the Corps does not.

Federal Migratory Bird Treaty Act. The Federal Migratory Bird Treaty Act (16 U.S.C. Sec. 703) prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. Most native bird species in the project area are covered by this Act.

California Fish and Game Code. The California Fish and Game Code includes regulations governing the use of, or impacts to, many of the state's fish, wildlife, and sensitive habitats. The

CDFG exerts jurisdiction over the bed and banks of rivers, lakes, and streams according to provisions of §§1601-1603 of the CDFG Code. The CDFG Code requires a Streambed Alteration Agreement for the fill or removal of material within the bed and banks of a watercourse or waterbody and for the removal of riparian vegetation.

Certain sections of the CDFG Code describe regulations pertaining to certain wildlife species. For example, CDFG Code §§3503, 2513, and 3800 (and other sections and subsections) protects native birds, including their nests and eggs, from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFG. Raptors (i.e., eagles, hawks, and owls) and their nests are specifically protected in California under CDFG Code §3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." CDFG Code §4150 protects non-game mammals, and other sections of the Code protect other taxa.

Magnuson-Stevens Fishery Conservation and Management Act. The Magnuson-Stevens Fishery Conservation and Management Act governs all fishery management activities that occur in federal waters within the United States 200 nautical mile limit. The Act establishes eight Regional Fishery Management Councils responsible for the preparation of fishery management plans to achieve the optimum yield from U.S. fisheries in their regions. These councils, with assistance from the National Marine Fisheries Service (NMFS), establish Essential Fish Habitat (EFH) in fishery management plans for all managed species. Federal agencies that fund, permit, or implement activities that may adversely affect EFH are required to consult with NMFS regarding potential adverse effects of their actions on EFH, and respond in writing to NMFS' recommendations.

The California Native Plant Society (CNPS), a non-governmental conservation organization, has developed lists of plant species of concern in California. Vascular plants included on these lists are defined as follows:

List 1A Plants considered extinct.

List 1B Plants rare, threatened, or endangered in California and elsewhere.

List 2 Plants rare, threatened, or endangered in California but more common elsewhere.

List 3 Plants about which more information is needed - review list.

List 4 Plants of limited distribution-watch list.

Although the CNPS is not a regulatory agency and plants on these lists have no formal regulatory protection, plants appearing on List 1B or List 2 are, in general, considered to meet CEQA's Section 15380 criteria and adverse effects to these species may be considered significant.

KEY ASSUMPTIONS

The following impact analysis is based on the draft project description provided by David J. Powers & Associates and plans from HMH Engineers dated 5 September 2007. This impact analysis assumes:

1) Best Management Practices (e.g., the use of construction fencing, silt fence, and other erosion and sediment controls around the borrow areas and the landfill) will be employed during construction to avoid the inadvertent placement or translocation of sediment into the wetlands surrounding the landfill area.
2) The existing Spill Prevention Control and Countermeasure Plan and Hazardous Materials Management Plan will continue to be implemented and will provide adequate spill prevention and response plans in areas of new or modified activity, such as the D-shaped area.
3) No impacts will occur to the wetland habitats outside of, and surrounding, the existing footprint of the landfill's impact areas (i.e., the muted tidal salt marsh within wetland areas adjacent to the landfill and pickleweed/cattail wetland within the areas adjacent to Coyote Creek).
4) The C & D area)and any other new activities that generate loud noises and vibration substantially greater than existing levels will not be located within 700 ft of California clapper rail nesting habitat in Coyote Creek, South Coyote Slough, or associated tidal marsh habitats to the south, west, and north portions of the Newby Island site.
5) Ongoing landfill activities involve frequent use of heavy equipment, considerable noise, some ground vibrations, and movement of landfill personnel in close proximity to the marsh and aquatic habitats surrounding the landfill. The intensity and locations of activities involving such disturbance change to some extent from year to year under existing conditions, and thus virtually the entire landfill is subject to at least some such disturbance under existing conditions. Thus, in light of assumption #4 above, it is assumed that the use of heavy equipment, noise, ground vibrations, and movement of landfill personnel in close proximity to the sensitive habitats surrounding the landfill will not increase substantially as a result of the project.
6) The stormwater retention pond that is located along the southern boundary of the site will be replaced with two new retention ponds on non-sensitive habitat to the east and west of its current location.
7) No hazardous materials will be stored within 100 feet of any waterbody or wetland located outside the landfill's perimeter berm. Best Management Practices (BMPs) concerning the use, storage, and transport of any hazardous or toxic materials will be strictly followed during construction and landfill operation to prevent contamination of Coyote Creek, South Coyote Slough, and other off-site wetland habitats.
8) Leachate, condensate, or other wastewaters piped to the San José/Santa Clara Water Pollution Control Plant will be transported through existing pipelines.

9) With approval of the expansion, the landfill will not be accepting more waste per year than it currently does, on average, but it will be able to accept the current levels of waste for a longer period than would be possible without the project.

IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

Disturbance of Ruderal and Developed Habitats

The fill material present in developed and ruderal areas of the landfill (the majority of the site) supports an assemblage of primarily non-native plant species. No special-status plant species were found in this area, nor are any expected to occur in this habitat. Its biological value is limited due to the frequent and ongoing disturbance of this area and the lack of wetlands or pools. The much higher-quality, naturally occurring wetlands surrounding the project site are not manipulated and offer contiguous, natural habitat for plant and wildlife use. Disturbance of the developed and ruderal habitat as a result of borrow and landfill activities will result in the displacement of some relatively common wildlife species and will result in a temporary loss of habitat for these species. However, ruderal and developed habitat will continue to be available on the site during the project's ongoing landfilling operations, since new landfilling activities will occur in a phased manner (i.e., focusing on only a fraction of the landfill at any given time rather than being distributed throughout the entire site). In addition, the project will not cause the permanent loss of ruderal habitat, as the landfill will eventually be revegetated when landfilling activities cease. For most species the project area represents a very small fraction of such habitat available regionally, and the phased, temporary loss of such habitat thus will not result in significant impacts to biological resources (though see Potential *Impacts to Individual Burrowing Owls and Their Burrows* below).

Disturbance to Aquatic Habitat within the Retention Basins and Adjacent Aquatic Habitat

The retention basins are man-made and were constructed to contain any sediment or pollution draining from the landfill to prevent it from directly entering the surrounding slough, Coyote Creek, and the associated wetlands (and ultimately San Francisco Bay). Ongoing disturbance of these basins occurs as a result of existing landfill activities. These basins provide limited, low-quality habitat for wildlife, and much higher-quality aquatic habitat is regionally abundant. Therefore, impacts to these retention basins (e.g., by filling or sedimentation during landfill expansion or moving either of these basins to non-sensitive habitat elsewhere within the landfill) and the wildlife species that use them are considered less than significant.

Runoff from the landfill and Recyclery currently leaves (and will continue to leave) the site in several ways. The northern portions of the landfill have been graded to direct surface stormwater flow to drainage swales and ditches that eventually flow to the adjacent Coyote Creek. Stormwater runoff from the southern compost windrow area is conveyed via drainage swales and ditches to the adjacent compost runoff retention pond located east of the windrows. Runoff from the western compost windrows is collected in the western compost stormwater retention pond. The runoff from the compost runoff retention ponds is used to water the compost wind-rows, for dust control, or transferred to the stormwater retention pond located southwest of the maintenance shops where it is pumped to South Coyote Slough south and west of the site.

Runoff from the C&D area flows to the main stormwater retention pond where it is pumped into South Coyote Slough. Stormwater runoff from the working face of the landfill (called "contact water") is collected separately via drainage swales and ditches and pumped into the leachate holding tanks. The leachate is loaded on trucks and disposed of at the WPCP. Runoff from the D-shaped area of the landfill is conveyed into storm drains where it flows to Coyote Creek. Runoff from the Recyclery and greenwaste and grinding area is conveyed into storm drain lines to the upper retention pond then discharged into South Coyote Slough.

The basins and ponds currently present on the site will be relocated to areas near their current locations; the new basins will be constructed in areas that are currently heavily disturbed by the landfill (i.e., they will not be relocated to sensitive habitat areas). The project is not expected to result in an increase in the amount of runoff that leaves the landfill and enters sensitive areas (e.g., Coyote Creek and South Coyote Slough), nor is it expected to result in reduced quality of water leaving the landfill. Therefore, relative to the existing baseline condition, the project will not result in substantial degradation of water quality off-site. Continued implementation of the existing *Spill Prevention Control and Countermeasure Plan* and *Hazardous Materials Management Plan*, and implementation of BMPs and the presence of berms surrounding the Newby Island Landfill site, will prevent contamination of Coyote Creek, South Coyote Slough, and other wetland habitats beyond any baseline water quality impacts that currently occur. Thus, impacts of the project on these aquatic and wetland habitats, including Essential Fish Habitat, and on aquatic species such as the Central California Coast steelhead and Central Valley fall-run Chinook salmon, are less than significant.

Impacts to Foraging Special-Status Species

A number of special-status wildlife species occur on the Newby Island Landfill site only as rare visitors, migrants, or transients, or forage in relatively low numbers on the site while breeding in nearby areas. These species, which are not expected to breed on or immediately adjacent to the site, include the yellow warbler, American peregrine falcon, golden eagle, short-eared owl, tricolored blackbird, western red bat, and hoary bat. The project will have no effect on the breeding success of these species. New activities at the landfill may result in a very small reduction of foraging habitat available to these species regionally. However, the site represents only a small fraction of potential foraging habitat for these species regionally, and these species occur on the site infrequently and/or in small numbers, so that the project has the potential to affect only a small fraction of these species' regional populations. Furthermore, foraging habitat for these species will continue to be available on the site during the project's ongoing landfilling operations, since new landfilling activities will occur in a phased manner (i.e., focusing on only a fraction of the landfill at any given time rather than being distributed throughout the entire site). Also, the project will not cause the permanent loss of foraging habitat for these species, as the landfill will eventually be revegetated when landfilling activities cease. Therefore, the project is expected to have a less than significant impact on these species that may occasionally occur, but not breed, on the site.

Indirect Disturbance Impacts to Colonial Nesting Waterbirds

A breeding colony of black-crowned night-herons, snowy egrets, and great egrets has previously been recorded along Coyote Creek in the Don Edwards San Francisco Bay National Wildlife

Refuge, approximately 100 m to the north of Newby Island Landfill (Kelly et al. 2006). Peak numbers of nesting birds occurred in 2000, with over 100 snowy egret nests recorded that year. No nests were recorded in 2003, and no surveys have been conducted since that time, so it is unknown whether the colony is still active. Project-related activities close to the marsh that surrounds the landfill will include filling of existing stormwater basins, excavation of new basins, dumping and covering of refuse, and other activities that, on sites less exposed to continuous disturbance than the project site, could potentially disturb nesting waterbirds to the point of causing abandonment of nests or colonies. However, the waterbird colony along Coyote Creek was established under conditions that included ongoing landfilling activities, which involve frequent use of heavy equipment, considerable noise, some ground vibrations, and movement of landfill personnel in close proximity to the surrounding marsh, suggesting that the birds are tolerant of existing levels and types of disturbance. In addition, new activities generating noise and vibration substantially greater than existing levels will not occur within 700 ft of the higher-quality marsh habitat along Coyote Creek to the north of the project (see *Key Assumptions* above). As a result, any disturbance of nesting waders in marshes adjacent to the project site will not exceed baseline levels in terms of the type and magnitude of the impacts that may occur in any given year, and we do not expect the project to cause the abandonment of the rookery site, if it is still active, since disturbance associated with the project will not be substantially greater than baseline levels.

Because the project will increase the capacity of the landfill, and because the effective life span of the landfill is related to its capacity (in addition to the rate of garbage intake), the project could potentially expose nesting waterbirds to "baseline" levels of disturbance for a longer period than would occur without project approval. However, given the apparently ephemeral nature of this colony, and the degree to which heronries move around from year to year throughout the Bay Area, continuing the existing levels of disturbance for a longer duration will not impact populations of these species substantially. The birds will either continue to nest in the adjacent marsh, or they will nest in other locations in the Bay Area. Therefore, this project will not affect regional populations of these waders, and project impacts to these species ass will be less than significant.

Indirect Disturbance Impacts to Special-status Marsh-nesting Birds

Special-status bird species, including the white-tailed kite, northern harrier, San Francisco common yellowthroat, and Alameda song sparrow, are expected to breed in marsh or marsh-edge habitats and other areas adjacent to the Newby Island Landfill site. The project will not directly impact any marsh or marsh-edge habitat in which these species may breed. Currently, the active solid waste disposal area and the C & D portions of the landfill are located near the central and the southwestern portions of the project site, respectively. Any individuals of these species that currently occur in the marshes surrounding the project site must be habituated to ongoing landfilling activities, which involve frequent use of heavy equipment, considerable noise, some ground vibration, and movement of landfill personnel in close proximity to the surrounding marsh, to some extent. However, current landfill activities could potentially be impacting these species in several ways. If marsh-nesting birds avoid otherwise suitable habitat close to the landfill due to aversion to noise, movement of heavy equipment, nuisance species abatement measures, and other activities, then current activities are inhibiting the occupation of suitable habitat. If individuals occur in marshes immediately adjacent to the landfill, then sudden

changes in the type or intensity of activity at a given site close to the marsh could disturb these birds, possibly forcing them into more marginal habitat, flushing them and subjecting them to greater risk of predation, or possibly even causing birds to abandon nests. Activities proposed by the project, including relocating the landfill maintenance shop, fueling station, and leachate management system to the D-shaped area, relocation of stormwater detention ponds, or moving the C & D to an area closer to the tidal marsh, will result in grading, use of heavy equipment, and movement of project personnel in close proximity to the marshes that surround the project site. Such activities have the potential to impact marsh-nesting birds in the same ways and to the same extent as current landfill activities. At most, 1-2 pairs each of northern harriers and white-tailed kites and 4-8 pairs each of common yellowthroats and song sparrows are expected to breed in marsh areas directly adjacent to the D-shaped area, the location of the proposed sediment detention basin in the western part of the site, or other areas where activities at the landfill will change near marsh habitats. Because new activities generating noise and vibration substantially greater than existing levels will not occur within 700 ft of potential California clapper rail breeding habitat along Coyote Creek or South Coyote Slough to the south, west, and north of the project (see *Key Assumptions* above), indirect disturbance of marshes associated with the project will not be substantially greater than baseline levels in terms of the type and magnitude of the impacts that may occur in any given year.

Because the project will increase the capacity of the landfill, and because the effective life span of the landfill is related to its capacity (in addition to the rate of garbage intake), the project could potentially expose marsh-nesting birds to "baseline" levels of disturbance for a longer period than would occur without project approval. However, only a very small proportion of the regional populations of these species could be indirectly impacted by project disturbance, even if the project subjects these birds to landfill-related disturbance for a longer duration. Therefore, indirect impacts to these special-status marsh-nesting birds are considered less than significant.

Impacts to Nesting Loggerhead Shrikes and Bryant's Savannah Sparrows

Loggerhead shrikes forage, and likely breed, in various locations on the project site. Bryant's savannah sparrows may forage, and possibly breed, on ruderal/grassy areas of the project site and in adjacent pickleweed-dominated marshes. Any individuals of these species that currently occur on the project site must be habituated to ongoing landfilling activities, which involve frequent use of heavy equipment, considerable noise, some ground vibration, and movement of landfill personnel, to some extent. However, current landfill activities could potentially be impacting these species by inhibiting occupation of suitable habitat due to disturbance. Also, sudden changes in the type or intensity of activity at a given site close to nesting areas could disturb these birds, possibly forcing them into more marginal habitat, flushing them and subjecting them to greater risk of predation, or possibly even causing birds to abandon nests. A change in solid waste disposal activities, including operating in areas that have previously been allowed to vegetate, could result in the displacement of nesting and foraging birds and the loss of active nests of these species. Activities proposed by the project, including relocating the landfill maintenance shop, fueling station, and leachate management system to the D-shaped area, relocation of stormwater detention ponds, or moving the C & D area to a new location, could impact loggerhead shrikes and Bryant's savannah sparrows in the same ways and to the same extent as current landfill activities. Because new activities generating noise and vibration substantially greater than existing levels will not occur within 700 ft of potential California

clapper rail breeding habitat in marshes surrounding the site (see *Key Assumptions* above), shrikes nesting in shrubs adjacent to these marshes and savannah sparrows nesting within these marshes will not be subjected to substantially greater disturbance in terms of the type and magnitude of the impacts that may occur in any given year.

Because the project will increase the capacity of the landfill, and because the effective life span of the landfill is related to its capacity (in addition to the rate of garbage intake), the project could potentially expose loggerhead shrikes and Bryant's savannah sparrows to "baseline" levels of disturbance for a longer period than would occur without project approval. However, at most, only a very small proportion of regionally available habitat, and a small proportion of the regional populations, of these two species could be impacted by project disturbance, and the impacts will have a minimal effect on regional populations. Furthermore, habitat for these species will continue to be available on the site during the project's ongoing landfilling operations, since new landfilling activities will occur in a phased manner (i.e., focusing on only a fraction of the landfill at any given time rather than being distributed throughout the entire site). Also, the project will not cause the permanent loss of habitat for these species, as the landfill will eventually be revegetated when landfilling activities cease. Therefore, impacts to these species will be less than significant.

Impacts to Wildlife from Lighting

Artificial outdoor lighting has the potential to disrupt the activities of nocturnal wildlife or facilitate predation on sensitive species. There is already a baseline level of outdoor lighting at the landfill and Recyclery for safety and security purposes. The project does not propose substantial increases in the number of lighted facilities or in the intensity of night lighting. Furthermore, new facilities that result in substantial increases in noise and vibration will not be located within 700 feet of potential California clapper rail breeding habitat, limiting the potential for new light sources to be located near marshes surrounding the landfill. Therefore, the project is not expected to result in significant impacts to wildlife activities or predation rates due to changes in the location or intensity of artificial lighting.

Loss of Ordinance-sized Trees

Several ordinance-sized trees currently exist on the site, particularly within the D-shaped area. As landfill operations expand into new areas, either under the existing permit or as part of the proposed project, some or all of these trees may be removed. Because impacts to these trees could occur under the existing project approvals, the project will not result in a substantial impact to the trees or species that use them relatively to the baseline condition. These trees are primarily Monterey pine trees that are not native and were planted during construction of the landfill operations buildings on the site. Wildlife that use these trees are mostly relatively common, widespread species that have adapted to the existing disturbance at the landfill. There is no shortage of similar trees present either locally or regionally. Therefore, impacts to these trees are considered to be less than significant.

IMPACTS THAT ARE LESS THAN SIGNIFICANT WITH MITIGATION

Potential Disturbance Impacts to California Clapper Rails

Surveys conducted during the 1990 breeding season (H. T. Harvey & Associates 1990a) and winter season (H. T. Harvey & Associates 1990b) revealed a number of California clapper rails occupying marshes in the Fremont Lagoons and along upper Coyote Slough immediately to the west and southwest of the Newby Island project site. Breeding-season surveys in the same areas did not detect clapper rails in 1989 or 2006 (H. T. Harvey & Associates 1989, 2007). These results suggest that clapper rail use of the marshes surrounding the project site may be subject to considerable fluctuations, but that in at least some years, the tidal marsh in these areas provides breeding and foraging rail habitat in areas that are immediately adjacent to the project. These habitats will not be directly impacted by the Newby Island Landfill Expansion project.

Any clapper rails that currently occur in the marshes surrounding the project site must be habituated to ongoing landfilling activities, which involve frequent use of heavy equipment, considerable noise, some ground vibration, and movement of landfill personnel in close proximity to the surrounding marsh, to some extent. However, current landfill activities could potentially be impacting clapper rails in several ways. If clapper rails avoid otherwise suitable habitat close to the landfill due to aversion to noise, movement of heavy equipment, nuisance species abatement measures, and other activities, then current activities are inhibiting the occupation of suitable rail habitat. If rails occur in marshes immediately adjacent to the landfill, then sudden changes in the type or intensity of activity at a given site close to the marsh could disturb clapper rails, possibly forcing them into more marginal habitat, flushing the rails and subjecting them to greater risk of predation, or possibly even causing rails to abandon nests. Activities proposed by the project will result in grading, use of heavy equipment, and movement of project personnel in close proximity to the marshes that surround the project site. Such activities have the potential to impact clapper rails in the same ways and to the same extent as current landfill activities. New activities that result in substantially greater noise or vibration than existing activities will not occur within 700 ft of potential California clapper rail breeding habitat in Coyote Creek or South Coyote Slough to the south, west, and north of the project (see *Key Assumptions* above). Therefore, any disturbance of California clapper rails in marshes adjacent to the project site will not exceed baseline levels in terms of the type and magnitude of the impacts that may occur in any given year.

However, because the project will increase the capacity of the landfill, and because the effective life span of the landfill is related to its capacity (in addition to the rate of garbage intake), the project could potentially expose clapper rails to “baseline” levels of disturbance for a longer period than would occur without project approval. As discussed in the project description above, landfilling activities are anticipated to be completed around 2025 without the proposed expansion. Although landfill activities could potentially continue beyond 2025 with or without project approval (depending on the rate of garbage intake between now and 2025), project approval would increase the probability that landfill operations could continue beyond 2025. Increasing the duration of current levels of disturbance may have a long-term effect on California clapper rail populations, as compared to the without-project condition. Given the limited habitat for, and low population sizes of, California clapper rails, such an impact would be significant.

Implementation of the following mitigation measure will reduce this impact to a less than significant level.

Mitigation Measure 1. Off-site Habitat Restoration/Enhancement. If landfill activities continue beyond 2025, compensatory mitigation will be provided for continuation of disturbance of California clapper rails beyond the anticipated duration of disturbance under the no-project condition. At this time, it is not possible to determine the precise type and extent of mitigation that is appropriate, for several reasons:

- The types and locations of project activities at the landfill are the primary determinants of the project's effects on clapper rails. For example, occasional truck traffic in a given area near the marsh has far less potential to disturb clapper rails in the adjacent marsh than prolonged grading, dumping, or covering of garbage (and implementation of associated nuisance species abatement measures) in the same area. However, at this time, it is not possible to accurately predict which activities will occur in which areas of the site after the year 2025. It is expected that by that time, most landfill activities will be concentrated toward the higher, central part of the site, far enough from the marsh edge that little or no impact to clapper rails will result, but this is uncertain.

- The distribution and abundance of suitable habitat for clapper rails, and of individuals of this species, may change considerably between now and the year 2025, affecting the project's potential to impact the species. For example, rail habitat may be considerably more extensive and of higher quality in 2025 than it is now, or it may be reduced considerably or of lower quality for reasons unrelated to landfill activities (e.g., invasion by non-native plants, scour resulting from salt pond restoration, or sea level rise). Because this impact is specifically focused on impacts occurring after the year 2025, it is appropriate for the impact to be assessed based on conditions present at that time.

If landfill activities continue beyond 2025, the City will require a qualified biologist to conduct a more refined assessment of the impacts of continuing landfill activities on California clapper rails. That assessment will consider the types and locations of Project activities at the landfill that will continue beyond 2025, the distribution and quality of habitat in the surrounding marsh, the distribution of clapper rails in the marsh (and more widely, in the South Bay, if appropriate), the use of the affected marsh by clapper rails (e.g., for breeding or nonbreeding use), and other relevant factors. The biologist will determine the effect of continuing landfill activities on clapper rails in terms of the acreage of clapper rail habitat impacted.

Off-site mitigation will be provided at a 1:1 acreage ratio via the restoration or enhancement of tidal marsh suitable for use by clapper rails in the South Bay. The precise location and means of providing such mitigation cannot be known at this time, as tidal marsh restoration and other activities that occur between now and 2025 will influence available mitigation opportunities. The applicant will have a qualified restoration ecologist prepare a mitigation plan detailing the following:

(1) A summary of habitat impacts

(2) Goals of the restoration

(3) The location of mitigation site(s) and description of existing site conditions

(4) Mitigation design:

- Existing and proposed site hydrology, geomorphology, and geotechnical stability, as applicable
- Grading/restoration plan
- Soil amendments and other site preparation elements as appropriate
- Maintenance activities
- Remedial measures and adaptive management measures

(5) Monitoring plan (including final and performance criteria, monitoring methods, data analysis, reporting requirements, and monitoring schedule)

(6) A contingency plan for mitigation elements that do not meet performance or final success criteria

The mitigation plan will be submitted to the City for approval. The City will ensure that the mitigation is provided and that the mitigation site meets its success criteria.

Potential Impacts to Individual Burrowing Owls and Their Burrows

No burrowing owls, signs of owls, or California ground squirrels were observed on the project site during the reconnaissance-level survey conducted for this EIR. However, burrowing owls occur in a number of locations approximately 2 mi to the south of the site and infrequently disturbed ruderal/grassy areas on the project site could provide suitable foraging and breeding habitat for ground squirrels and burrowing owls.

Potential burrowing owl habitat will continue to be available on the site during the project's ongoing landfilling operations, since new landfilling activities will occur in a phased manner (i.e., focusing on only a fraction of the landfill at any given time rather than being distributed throughout the entire site). Also, the project will not cause the permanent loss of habitat for these species, as the landfill will eventually be revegetated when landfilling activities cease. Therefore, impacts to habitat of this species will be less than significant.

However, because burrowing owl populations are declining throughout much of their range in the United States, and particularly within the South Bay region, any impacts from the Newby Island Landfill Expansion project that result in the injury or mortality of individual owls or active nests, such as excavation or grading, or project-related disturbance that results in the abandonment of eggs or nestlings, would be considered significant. Implementation of Mitigation Measure 2a, in combination with Measures 2b and 2c if necessary, would reduce impacts to less than significant levels.

Mitigation Measure 2a. Pre-activity Surveys. Surveys for burrowing owls should be conducted in potential habitat in conformance with the CDFG protocol, no more than 30 days prior to the start of any new ground-disturbing activity (i.e., any activity that is not already ongoing as part of the current landfill operations) associated with the expansion of the landfill,

such as filling or grading in previously undisturbed ruderal/grassy areas. If no burrowing owls are located during these surveys, no additional action would be warranted. If these surveys detect burrowing owls on or within 250 feet of the site, then any ongoing landfill activity near an occupied owl burrow can continue as long as it does not increase in intensity, or encroach closer to an existing burrow, and as long as the existing burrow is not destroyed and owls are not in danger of being harmed. If activity will increase in intensity or proximity to an occupied burrow, the following mitigation measures will be implemented.

Mitigation Measure 2b. Buffer Zones. If burrowing owls are present during the breeding season (generally 1 February to 31 August), a 250-foot buffer, within which no new project-related activity will be permissible, will be maintained between project activities and occupied burrows. Owls present at burrows on the site after 1 February will be assumed to be nesting on or adjacent to the site unless evidence indicates otherwise. This protected area will remain in effect until 31 August or, based upon monitoring evidence, until the young owls are foraging independently.

Mitigation Measure 2c. Relocation. If ground-disturbing activities will directly impact an occupied burrow, the owl(s) should be evicted outside the nesting season to avoid impacts to the bird(s). No burrowing owls should be evicted from burrows during the nesting season (1 February through 31 August) unless evidence indicates that nesting is not actively occurring (e.g., because the owls have not yet begun nesting early in the season, or because young have already fledged late in the season).

Potential Disturbance Impacts to Salt Marsh Harvest Mice and Salt Marsh Wandering Shrews

The salt marsh harvest mouse is expected to occur in pickleweed/bulrush-dominated tidal marsh habitats adjacent to the active landfill, and the salt marsh wandering shrew may inhabit these areas as well. These habitats will not be impacted directly by the Newby Island Landfill Expansion project.

Any salt marsh harvest mice or salt marsh wandering shrews that currently occur in the marshes surrounding the project site must be habituated to ongoing landfilling activities, which involve frequent use of heavy equipment, considerable noise, some ground vibration, and movement of landfill personnel in close proximity to the surrounding marsh, to some extent. However, current landfill activities could potentially be impacting these species in several ways. If salt marsh harvest mice or salt marsh wandering shrews avoid otherwise suitable habitat close to the landfill due to aversion to noise, movement of heavy equipment, and activities of landfill personnel, then current activities are inhibiting the occupation of suitable habitat for these species. If individuals occur in marshes immediately adjacent to the landfill, then sudden changes in the type or intensity of activity at a given site close to the marsh could disturb individuals, possibly forcing them into more marginal habitat, or flushing them and subjecting them to greater risk of predation. Activities proposed by the project will result in grading, use of heavy equipment, and movement of project personnel in close proximity to the marshes that surround the project site. Such activities have the potential to impact salt marsh harvest mice and salt marsh wandering shrews in the same ways and to the same extent as current landfill activities. New activities that result in substantially greater noise or vibration than existing activities will not occur within 700

ft of potential California clapper rail breeding habitat in Coyote Creek or South Coyote Slough to the south, west, and north of the project (see *Key Assumptions* above). Therefore, any disturbance of salt marsh harvest mice or salt marsh wandering shrews in marshes adjacent to the project site will not exceed baseline levels in terms of the type and magnitude of the impacts that may occur in any given year.

However, because the project will increase the capacity of the landfill, and because the effective life span of the landfill is related to its capacity (in addition to the rate of garbage intake), the project could potentially expose salt marsh harvest mice and salt marsh wandering shrews to "baseline" levels of disturbance for a longer period than would occur without project approval. As discussed in the project description above, landfilling activities are anticipated to be completed around 2025 without the proposed expansion. Although landfill activities could potentially continue beyond 2025 with or without project approval (depending on the rate of garbage intake between now and 2025), project approval would increase the probability that landfill operations could continue beyond 2025. Increasing the duration of current levels of disturbance may have a long-term effect on salt marsh harvest mice or salt marsh wandering shrews populations, as compared to the without-project condition. Given the limited habitat for, and low population sizes of, these two mammals, such an impact would be significant.

To mitigate this impact to a less than significant level, the impact assessment and restoration/enhancement of off-site habitat described in Mitigation Measure 1 will include these two species as well. If landfill activities continue beyond 2025, a qualified biologist will assess impacts to habitat of these two species as described in Mitigation Measure 1, and suitable habitat for these two species will be restored or enhanced at an off-site location at a 1:1 acreage ratio. The same off-site mitigation can serve to mitigate impacts to California clapper rails, salt marsh harvest mice, and salt marsh wandering shrews in a single location as long as the habitat restored or enhanced is suitable for all three species.

Indirect Impacts to Sensitive Wildlife Resulting from Landfill Support of Nuisance Species

Landfills that accept food waste provide an anthropogenic food supply for scavenging nuisance species, which can impact other, more sensitive biological resources through predation and/or competition. Nuisance species that regularly use landfills include various species of gulls (Mudge and Ferns 1982, Burger and Gochfeld 1983, Coulson et al. 1987, Patton 1988, Belant et al. 1993, 1995, Baxter and Robinson 2007), corvids such as common ravens and American crows (Stouffer and Caccamise 1991, Kristan 2001, Webb 2001), rats (Marsh and Howard 1969, Sharp 2007), raccoons (Totton et al. 2002), foxes, and feral cats (Yamane et al. 1997, Hutchins 2003).

Landfills provide a reliable food source for nuisance species. Some gull populations have become largely dependent on landfills for much of their food (Belant et al. 1998), and landfill foraging by gulls has been linked to an increase in breeding success (Pons 1992) and population increases in some gulls (Belant et al. 1998, Duhem et al. 2008). While other anthropogenic food sources certainly benefit these species, the availability of food waste at landfills may allow nuisance species' populations to consistently enjoy higher reproductive success and survivorship, by reducing starvation and reducing the time adults need to spend away from nests and young looking for food, than would be possible without such a reliable food supply. While anthropogenic food at landfills replaces the need for depredation of the nuisance species' natural

prey at times, nuisance species do not derive all of their food from landfills. For example, Ackerman et al. (2006) demonstrated that California gulls use of landfills in the South Bay decreased dramatically throughout the breeding season, indicating this species switched from using landfills for food to natural prey (such as waterbird eggs and chicks) throughout the chick-rearing period (May through July). Thus, the net effect of the availability of food waste at landfills may be to subsidize the diets of nuisance species, allowing them to achieve or maintain high populations which then continue preying on, or competing with (e.g., for nesting sites), more sensitive species. Predation by nuisance species on rare species may have particularly severe population consequences when food subsidies allow the populations of nuisance species to remain high even as their prey populations decline (Andren 1992, Sinclair et al. 1988, Courchamp et al. 2000, Kristan et al. 2004).

Currently, the Newby Island Landfill attracts, and provides food subsidies for, thousands of gulls. During the breeding season, most of the gulls occurring at the landfill are South Bay-breeding California gulls. During the non-breeding season, particularly from October through March, the principal gull species foraging at the landfill are California, herring, ring-billed, western, glaucous-winged, and Thayer's gulls. Gull counts conducted in 2006 by SFBBO and USGS (Ackerman et al. 2006) indicate that California gulls are the most numerous gull species between April and August. The average abundance of California gulls at Newby Island at any given time during survey counts was 3877 gulls, substantially more than at Tri-Cities landfill (1738) and at Palo Alto's landfill (49) (Ackerman et al. 2006). These counts represented the highest number of individuals observed at any one time. However, our observations of gulls here and elsewhere in the South Bay show a high rate of turnover, with gulls constantly moving in and out of the landfill during the day. As a result, the number of different individuals using the landfill in a given day is substantially higher than the maximum number recorded at a given time.

SFBBO (2008) continued gull surveys at Newby Island Landfill between February 2007 and December 2008 to determine the effectiveness of the gull abatement program that was initiated at the landfill in June 2008. SFBBO recorded a total of 549,668 observations of gulls using the Newby Island Landfill during 369 surveys between 26 February 2007 and 31 December 2008, representing a mean of nearly 1500 gulls/survey. However, the number of gulls using the landfill was significantly lower after the initiation of gull abatement activities than during the same month in 2007, prior to the implementation of the abatement program. For example, mean numbers of gulls per survey observed on the ground during the summer months, when most gulls using the landfill are locally breeding California gulls, declined from approximately 900, 1000, and 1250 in June, July, and August 2007 to 250-300 during each of those months in 2008. During the fall and early winter months, when several species of gulls use the landfill, mean counts of gulls on the ground per survey ranged from approximately 1600 to 3200 in 2007 but remained below 500 in 2008, after the gull abatement program was initiated. These gull surveys have continued to the present.

Gulls counted on exposed refuse, as opposed to portions of the landfill where waste was not being actively dumped, varied from 23% in August 2007 to 93% in June 2007, with the other gulls during the survey period using non-refuse areas and partially exposed refuse areas (SFBBO 2007, Hudson 2008). On the exposed refuse, over 75% of the California gulls surveyed were

foraging (Hudson 2008). Although the number of gulls present on the ground, and in surrounding ponds, declined considerably between 2007 and 2008, presumably in response to the gull abatement program, the proportion of gulls that were foraging at the active landfill face increased after the abatement program began (2008).

Other high counts of gulls at Newby Island have included 33,000 (including 8000 California gulls) on 22 December 1998 and 24,000 (including 8000 California gulls) on 24 February 1998, (Santa Clara County Bird Data). Other gull species observed in high numbers at Newby Island include herring gulls (9000 on 19 December 1997; 24,000 on 22 December 1998; 20,000 on 8 March 2000), western gulls (200 on 19 February 1997; 400 on 22 December 1998), glaucous-winged gulls (300 on 19 December 1997; 800 on 24 February 1998), and Thayer's gulls (300 on 19 December 1997; 350 on 24 February 1998; Santa Clara County Bird Data). High gull counts recorded prior to the closure of the Tri-Cities Landfill in 2007 were likely the result of the availability of food at, and the close proximity of, both landfills simultaneously, as gulls were frequently observed moving between the two landfills prior to 2007.

Preliminary USGS radio-telemetry data indicate that California gull daily movements are influenced by the Newby Island Landfill, as gull attendance at the landfill appears to be correlated with the hours of operation and roosting sites are in close proximity to the landfill (J. Ackerman, pers. comm. 2008). These California gulls nest on levees and islands within the salt pond complexes in the South Bay, and they and the other gull species roost and forage in the salt ponds, on islands and levees, and on mudflats in the South Bay (SFBBO 2007, Santa Clara County Bird Data).

California gull breeding populations in the South Bay have rapidly increased since 1982, when they were first recorded breeding here, to over 36,000 breeding birds in 2007 (Strong et al. 2004, Ackerman et al. 2006, SFBBO 2007, Hudson 2008). While the Newby Island Landfill was in operation long before California gulls began nesting in the South Bay, and this landfill has certainly not been solely responsible for the increase in nesting gulls here, the availability of a dependable food source at Newby Island has likely contributed to the increase in California gulls in the South Bay region.

The increase in nesting California gull numbers in turn may result in impacts to more sensitive species in the South Bay. The most direct evidence of California gulls impacting ground-nesting waterbirds in the South Bay comes from observations of California gulls depredating camera-monitored American avocet nests, and radio-tagged avocet and black-necked stilt chicks in the Alviso area. In one study, camera data indicate that 15% of avocet nests were depredated by California gulls, and 61% of radio-marked avocet chicks and 23% of stilt chicks were depredated by California gulls (Ackerman et al. 2006).

California gulls have been documented preying on snowy plover eggs and chicks in Eden Landing salt ponds in Fremont (SFBBO, unpublished data) and at Mono Lake (Page et al. 1983). Surveys conducted by PRBO, SFBBO, and others since the 1970s have shown that the breeding population of federally threatened western snowy plovers in the South Bay is declining. South Bay surveys have documented declines in numbers of nesting snowy plovers from 351 breeding

birds in 1978 to 270 in 1984, 216 in 1989, and 99 in 2006 (Page et al. 2000, Robinson et al. 2006).

Similarly, Caspian tern populations in the South Bay have decreased from approximately 2000 birds in the 1980s to about 150 currently. The two remaining Caspian tern colonies in the South Bay are in close proximity to California gull colonies and few tern chicks have fledged in recent years (Ackerman et al. 2006).

Predation by gulls also likely has an adverse effect on the salt marsh harvest mouse and salt marsh wandering shrew. During very high winter tides, when marsh plains in the South Bay are almost completely inundated, gulls foraging over the marsh have been observed taking small mammals (S. Rottenborn, pers. obs., Santa Clara County Bird Data). Even if predation by California gulls occurs at a low rate (i.e., by a low percentage of gulls), the sheer abundance of gulls in the South Bay indicates that predation can have a substantial proportional impact on populations of rare species.

California gulls may adversely affect these other waterbirds not only through predation, but also by encroaching on nesting areas used by those other species. The site of the largest gull colony in the South Bay, salt pond A6 in Alviso, was used for nesting by snowy plovers prior to the establishment of the gull colony there. The largest Caspian tern colony in the South Bay was formerly on salt pond levees in Fremont; these levees now support several thousand pairs of California gulls, and no terns. California gulls have also displaced Forster's terns from nesting islands in Mountain View (S. Rottenborn, pers. obs., Santa Clara County Bird Data).

In addition to subsidizing an increase in locally breeding California gulls, food availability at the Newby Island Landfill may be helping to subsidize populations of California gulls breeding in other areas and populations of other gull species by increasing survival rates of wintering gulls in the South Bay. This may have ecological consequences in other regions, particularly in breeding or staging areas for gulls. For instance, increased winter survival of herring, glaucous-winged, western, ring-billed, and Thayer's gulls due to the availability of food at the Newby Island Landfill could help to sustain populations in these species' breeding ranges (all to the north of the Bay Area), which in turn could result in higher levels of predation or nest-site competition for sensitive species near those gulls' breeding or staging areas. Gulls are known to be important predators of salmonids in the Pacific Northwest (Ruggerone 1986, York et al. 2000, M. Wilson 2004, Christe and Reimchen 2005, Major et al. 2005) and increased survivorship of gulls wintering in the South Bay, as a result of food availability at landfills in winter, could result in increased predation on salmonids farther north.

Other avian predators, particularly corvids (crows and ravens), forage regularly at Newby Island Landfill, and these species depredate western snowy plover and California clapper rail nests in the South Bay (N. Wilson 2004, S. Rottenborn, pers. obs., SFBBO, unpublished data). Corvid numbers are increasing throughout California, and common raven numbers in particular have increased considerably in the South Bay over the past 2 decades (Bousman 2007). Food availability at the Newby Island Landfill and other landfills, in addition to other anthropogenic food sources, is likely helping to support these population increases.

Mammalian species, including non-native species such as red fox, Norway rat, roof rat, and feral cats, may also benefit from food subsidies at the landfill, possibly resulting in impacts to special-status species in adjacent habitats. California clapper rail predation by red foxes and feral cats has been documented in the South by tracking the fates of radio-marked rails (Albertson 1995). Norway rats are thought to be a primary predator of California clapper rail eggs (Harvey 1988, Foerster et al. 1990), and raccoons have been known to prey on clapper rail eggs (Foerster et al. 1990). Red fox predation has been documented on western snowy plover nests in the South Bay (Harding et al. 1998) and has resulted in the abandonment of two Caspian tern colonies and a heron colony in the South Bay (Strong 2004).

Far-ranging species that forage at the landfill, such as corvids and gulls (especially gulls that forage at the landfill in winter and breed far to the north), may adversely affect sensitive species over broad areas. In addition, the proximity of the Newby Island Landfill to habitat for a number of sensitive species compounds the negative effect of nuisance species subsidies. The landfill is located immediately adjacent to nesting habitat for California clapper rails, American avocets, black-necked stilts, and other waterbirds, and habitat for salt marsh harvest mice and salt marsh wandering shrews. Western snowy plovers breed as close to the landfill as salt pond A22, approximately 1.5 miles north of the project site. As a result, we expect that individual nuisance animals receiving food subsidies at the landfill could directly affect sensitive species in nearby areas.

If the proposed landfill height increase is approved, the landfill will not be accepting more waste per year than it currently does, on average. Therefore, relative to the existing baseline levels of the landfill's subsidies to nuisance species, this project will not cause an increase in the populations of nuisance species or their adverse effects on more sensitive species. However, without approval of the expansion, the amount of waste that can be accepted by the landfill will decrease, relative to existing conditions, so that the landfill will just be fulfilling its contractual obligations through 2025. Therefore, approval of the project will result in the landfill's ability to accept more waste (until 2025) than would be permitted without the project. Because wintering and breeding gulls and corvids have been documented foraging in large numbers on refuse at the Newby Island Landfill, and mammalian predators known to feed at landfills have been documented depredating special-status species in the South Bay, the Newby Island Landfill Expansion project will result in greater potential for indirect impacts to sensitive species by supporting populations of nuisance species than would occur without the project.

As described under *Components of the Proposed Project* above, Allied Waste has been implementing nuisance species management measures, including a focused gull abatement program initiated in June 2008. Monitoring of the first 7 months of the abatement program suggests that these measures have been highly successful in reducing the numbers of gulls obtaining food at the landfill (SFBBO 2008), as was the case with similar abatement measures at the Ox Mountain Landfill in San Mateo County. In particular, abatement using a combination of pyrotechnics and trained falcons, paintball guns, trucks, and propane cannons appeared to be more effective at discouraging gull use of the landfill than the use of pyrotechnics alone. These findings are consistent with evidence gathered at other landfills suggesting that the use of falcons can be an effective abatement tool (Baxter and Allan 2006) and that a combination of different

techniques can improve abatement results by avoiding habituation (Baxter and Robinson 2007; Cook et al. 2008; A. Colussy II pers. comm. 2008).

Gull abatement activities at Newby Island during the latter half of 2008 were highly successful in reducing the numbers of gulls using the landfill (SFBBO 2008). However, SFBBO's results indicated that some gulls habituated quickly to abatement measures, and thus some gulls were able to continue obtaining food from the landfill. The number of individual gulls obtaining food from the Newby Island Landfill is unknown, but due to the turnover in individuals at this location, the number of different individual gulls supported by the landfill is likely considerably higher than the mean number observed per survey by SFBBO.

As a component of its proposed height expansion project, Allied Waste has had H. T. Harvey & Associates prepare a Nuisance Species Abatement Plan, which is included as Appendix B. This plan addresses abatement of nuisance species such as gulls, corvids, and mammals at the landfill and the Recyclery; incorporates adaptive management strategies; and describes the monitoring, reporting, and supervision procedures required to ensure successful nuisance species abatement.

Although gull abatement measures implemented at Newby Island since June 2008 have been very successful, there is still some potential for the project to result in adverse effects to sensitive species by subsidizing gulls (e.g., if increasing numbers of gulls habituate to ongoing abatement measures or if the multiple-technique abatement is relaxed). Also, no data comparable to SFBBO's gull monitoring data are available for other nuisance species, such as corvids and nuisance mammals. For all nuisance species, adverse effects of the project may occur even as the new Nuisance Species Abatement Plan is being implemented, as long-term monitoring and adaptive management may be necessary to identify the most successful abatement techniques for use at this particular site, and to identify how the plan's implementation must be adapted as species habituate to certain abatement measures. As a result, the impacts to sensitive species in the South Bay, and in other regions that serve as breeding and staging areas for gulls that forage at the Newby Island Landfill in winter, resulting from nuisance species subsidized by the landfill are considered significant. However, implementation of Mitigation Measure 3a, and 3b if necessary, will mitigate this impact to a less than significant level.

Mitigation Measure 3a. Implement Nuisance Species Abatement Plan. The Nuisance Species Abatement Plan included as Appendix B shall be fully implemented at the landfill and Recyclery as long as the landfill and/or Recyclery are in operation. Monitoring shall be conducted by qualified ornithologists according to the plan to determine the effectiveness of initial abatement measures, and abatement techniques will be adapted in consultation with these ornithologists as necessary to ensure effectiveness. Regular monitoring reports will be prepared and submitted to the Director of Planning, Building, and Code Enforcement to document the success of the abatement program.

It is expected that the abatement process will have to be adaptive, and there may be periods when the success criteria described in the abatement plan are not achieved as the abatement program determines the most effective means of limiting the landfill's subsidy of nuisance species populations. However, if the Director (in consultation with qualified biologists selected by the Director) determines that the abatement program is being implemented successfully, no

additional mitigation of this impact is necessary. If the Director determines that the abatement program is not being implemented successfully, and adaptive management is inadequate to achieve the desired success criteria, then Mitigation Measure 2b will be implemented.

Mitigation Measure 3b. Habitat/Predator Management for Sensitive Species. If the landfill operator is not meeting the success criteria specified in the Nuisance Species Abatement Plan, the operator will manage predators and/or habitat at an off-site, South Bay location (or locations) to benefit the sensitive species that are being adversely affected by nuisance species supported by the landfill. Such sensitive species may include species associated with managed ponds, such as the western snowy plover, terns, American avocets, and black-necked stilts, and/or species associated with tidal salt marshes, such as the California clapper rail, salt marsh harvest mouse, and salt marsh wandering shrew.

It is possible that abatement measures will be partially successful and thus will reduce the project's contribution to nuisance species' populations, even if success criteria are not achieved; such an outcome would affect the amount of off-site mitigation that will need to be provided. It is also possible that abatement measures may be fully successful for one group of nuisance species (e.g., gulls and corvids) but not another (e.g., mammals), thus potentially affecting the suite of sensitive species that must be targeted by off-site mitigation. As a result, it is not possible at this time to identify the sensitive species that must be targeted by off-site mitigation, the type of habitat mitigation required (e.g., salt pond management vs. tidal marsh restoration), or the amount of mitigation required.

If off-site mitigation is determined to be necessary, the Director of Planning, Building, and Code Enforcement, in consultation with qualified biologists as described in the Nuisance Species Abatement Plan, will determine the specific type and amount of off-site mitigation required. The type of mitigation required will depend on the type of nuisance species for which abatement measures are inadequate, and the type of sensitive species potentially adversely affected by depredation or encroachment by the nuisance species. For example, if gull and corvid abatement is inadequate, off-site mitigation may take the form of a financial contribution to focused avian predator management programs being implemented by others in the South Bay (e.g., elimination of problem corvids at snowy plover breeding locations); a financial contribution to habitat restoration and management projects being undertaken by others in the South Bay (e.g., pond management and tidal marsh restoration by the CDFG at Eden Landing Ecological Preserve); acquisition and management/restoration of suitable pond and marsh habitat in the South Bay; or other measures to benefit sensitive species that are adversely affected by gulls and corvids.

The amount of off-site mitigation, either in terms of the amount of a financial contribution to predator/habitat management or the acreage of habitat restoration/management required, will depend on the difference between nuisance species monitoring results and the success criteria specified by the abatement plan. The Director, in consultation with qualified biologists, will determine the appropriate level of the financial contribution or habitat restoration/management required based on the level of performance of the abatement program and an analysis, using the best information available at the time, of the likely effects of the nuisance species in question on sensitive species in the South Bay.

CUMULATIVE IMPACTS

CEQA mandates that the impacts of the Newby Island Landfill project be analyzed in conjunction with other related past, current, and probable future projects whose impacts might compound or interrelate with those of the project (Pub. Res. Code §21083 (b), CEQA Guidelines §15130).

Numerous other past, current, and foreseeable future projects in the South Bay will affect the habitats and species that will be affected by the Newby Island Landfill project. Some of these projects, such as the South Bay Salt Ponds Restoration project, will restore habitat for the wetland species that use marshes adjacent to the landfill, thus benefiting these species. Other projects, such as development projects, may adversely affect plant and animal species present on the Newby Island project site, including both special-status species and more common, widespread species. Cumulatively, these projects will result in some losses of individuals of common species and habitats that will not be mitigated, since these impacts are considered less than significant individually for each project, as well as impacts to sensitive habitats and special-status species that are likely to require mitigation.

The Newby Island Landfill is one of several landfills in the south San Francisco Bay Area that accept (or until recently accepted) food waste and that have the potential to support nuisance species. Others include the Tri-Cities Landfill (which closed in 2007), Ox Mountain Landfill, Palo Alto Landfill, Kirby Canyon Landfill, and Guadalupe Landfill. The provision of food to nuisance species by these other landfills also has the potential to affect sensitive species, both in the South Bay and in the nuisance birds' staging and breeding areas, for reasons described in the section *Indirect Impacts to Sensitive Wildlife Resulting from Landfill Support of Nuisance Species*. Other (non-landfill) anthropogenic food sources such as roadside waste, road-killed animals, open dumpsters, and feral cat feeding stations also contribute to cumulative effects of anthropogenically-subsidized nuisance species on sensitive species by maintaining predator and competitor populations at levels higher than would naturally occur. While these activities have a significant cumulative effect, the contribution to this effect from the Newby Island Landfill project will be mitigated with the implementation of Mitigation Measure 2 as described above.

The South Bay Salt Ponds Restoration project will begin implementing its Phase 1 activities in 2009. Among these Phase 1 activities will be the reconfiguration of Pond A16, located approximately 1.5 mi southwest of the Newby Island Landfill, by the creation of numerous nesting islands for waterbirds and management of shallow water levels. Although the modifications being made to this pond are intended to benefit nesting terns and snowy plovers, as well as foraging shorebirds and waterfowl, there is some concern that these islands will instead by colonized by more aggressive California gulls, or that nesting terns and plovers on these islands may be depredated by gulls, given the proximity of Pond A16 both to the Newby Island and Tri-Cities Landfills and to the existing gull colony in Pond A6 (EDAW et al. 2007). Although the Salt Ponds Restoration project will take measures to minimize the likelihood of gull colonization of these islands, sustained or increased food availability to gulls at South Bay landfills would exacerbate potential gull impacts at Pond A16. Implementation of Mitigation Measure 2 for the Newby Island Landfill expansion project would thus be necessary to avoid

contributing to cumulative impacts that gulls are likely having on sensitive species in the South Bay.

Due to the regional abundance of some of the resources that will be impacted by the Newby Island Landfill project (such as ruderal habitats), the measures incorporated into this project to avoid impacts to sensitive habitats and species (such as avoidance of impacts to the wetlands surrounding the project site), and mitigation measures for impacts to burrowing owls and the landfill's support of nuisance species, this project will not have a cumulatively considerable contribution to cumulative impacts to biological resources.

COMPLIANCE WITH ADDITIONAL LAWS AND REGULATIONS APPLICABLE TO BIOTIC RESOURCES OF THE PROJECT SITE

REGULATORY OVERVIEW FOR BIRDS

The Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA; 16 U.S.C., §703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment, a violation of the MBTA.

California State Fish and Game Code

Migratory birds are also protected in California. The State Fish and Game Code §3503 emulates the MBTA and protects birds' nests and eggs from all forms of take. Disturbance that causes nest abandonment resulting in the loss of eggs or young may be considered "take" by the CDFG. Nesting raptors (birds of prey) are specifically protected under CDFG Code §3503.5.

Project Applicability

The vast majority of birds found on the project site are protected under the MBTA, and by the Fish and Game Code. Project activities have the potential to take nests, eggs, young or individuals of these protected species. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to the abandonment of nests. Although this impact is not significant under CEQA due to the local and regional abundance of the species in question and the low magnitude of the potential impact, we recommend that the following measures be implemented to reduce the risk of a violation of the MBTA and the California Fish and Game Code.

Compliance Measures

Measure 1. Avoid Commencement of New Activities during the Nesting Season. Grading, dumping, construction, and other project activities in areas where they do not currently occur should be scheduled to commence during the non-breeding season to the extent feasible. The period of January through August encompasses the nesting season for most birds in the project area.

Measure 2. Pre-disturbance Surveys. If new activities are to occur during the breeding season, pre-disturbance surveys should be conducted by a qualified ornithologist no more than 15 days prior to the initiation of new disturbance in any given area. Pre-disturbance surveys should be used to ensure that no nests of species protected by the MBTA or State Code will be disturbed during project implementation.

Measure 3. Buffer Zones. If an active nest is found, a qualified biologist should determine the extent of a construction-free buffer zone to be established around the nest until nesting has been completed.

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APPENDIX A.
Special-Status Plant Species Considered but Rejected for Occurrence at the Project Site

Appendix A. Special-status plant species considered, but rejected, for occurrence on the project site.

Scientific Name	Common Name	Lack of Serpentine Soils	Lack of appropriate microhabitat	Lack of Other Edaphic Requirements	Believed to Be Extirpated or Extinct	Lack of Associated Species	Highly Degraded Site Conditions
Allium peninsulare var. *franciscanum*	Franciscan onion	X					
Amsinckia lunaris	bent-flowered fiddleneck		X				
Androsace elongata ssp. *acuta*	California androsace						X
Astragalus tener var. *tener*	alkali milk-vetch		X		X		X
Atriplex depressa	brittlescale			X			X
Atriplex joaquiniana	San Joaquin spearscale				X		
Azolla mexicana	Mexican mosquito fern		X			X	X
Balsamorhiza macrolepis var. *macrolepis*	big-scale balsamroot	X					
California macrophylla	round-leaved filaree			X			
Calochortus umbellatus	Oakland star-tulip	X					
Calystegia collina ssp. *venusta*	South Coast Range morning-glory	X		X			
Castilleja affinis ssp. *neglecta*	Tiburon paintbrush	X					
Castilleja rubicundula ssp. *rubicundula*	pink creamsacs	X					
Ceanothus ferrisiae	Coyote ceanothus	X					
Centromadia parryi ssp. *congdonii*	Congdon's tarplant			X			
Chorizanthe robusta var. *robusta*	robust spineflower		X	X			
Cirsium fontinale var. campylon	Mt. Hamilton fountain thistle	X		X			
Cordylanthus maritimus ssp. *palustris*	Point Reyes bird's-beak				X		X
Dudleya setchellii	Santa Clara Valley dudleya	X					
Eryngium aristulatum var. *hooveri*	Hoover's button-celery		X	X			
Erysimum franciscanum	San Francisco wallflower	X					
Fritillaria agrestis	stinkbells	X					
Fritillaria liliacea	fragrant fritillary	X					
Lasthenia conjugens	Contra Costa goldfields		X	X	X		
Leptosiphon acicularis	bristly leptosiphon						X
Leptosiphon ambiguus	serpentine leptosiphon	X					
Leptosiphon grandiflorus	large-flowered leptosiphon			X			
Lessingia hololeuca	woolly-headed lessingia	X					
Malacothamnus hallii	Hall's bush-mallow			X		X	
Micropus amphibolus	Mt. Diablo cottonweed			X			
Microseris sylvatica	sylvan microseris	X			X		
Monardella villosa ssp. *globosa*	robust monardella						X
Navarretia cotulifolia	cotula navarretia			X			
Navarretia prostrata	prostrate navarretia		X				X

Scientific Name	Common Name	Lack of Serpentine Soils	Lack of appropriate microhabitat	Lack of Other Edaphic Requirements	Believed to Be Extirpated or Extinct	Lack of Associated Species	Highly Degraded Site Conditions
Pentachaeta exilis ssp. *aeolica*	San Benito pentachaeta						X
Perideridia gairdneri ssp. *gairdneri*	Gairdner's yampah		X	X			
Plagiobothrys chorisianus var. *hickmanii*	Hickman's popcorn-flower		X				
Plagiobothrys glaber	hairless popcorn-flower			X	X		X
Plagiobothrys uncinatus	hooked popcorn-flower						X
Potamogeton filiformis	slender-leaved pondweed				X		X
Ranunculus lobbii	Lobb's aquatic buttercup		X	X			
Sanicula saxatilis	rock sanicle			X			
Streptanthus albidus ssp. *albidus*	Metcalf Canyon jewel-flower	X					
Streptanthus albidus ssp. *peramoenus*	most beautiful jewel-flower	X	X				
Suaeda californica	California seablite				X		X
Trifolium amoenum	two-fork clover	X			X		
Trifolium depauperatum var. *hydrophilum*	saline clover		X				
Tropidocarpum capparideum	caper-fruited tropidocarpum				X		X

APPENDIX B.
Nuisance Species Abatement Plan

NUISANCE SPECIES ABATEMENT PLAN
NEWBY ISLAND SANITARY LANDFILL AND RECYCLERY

INTRODUCTION

The Newby Island Sanitary Landfill and the Recyclery Planned Development project will allow current levels of waste handling to continue at the landfill until 2025 and will allow for food waste to be handled at the recyclery for composting purposes. If food waste is accessible, the landfill and recyclery will attract nuisance species, including gulls, corvids such as common ravens and American crows, rats, opossums, raccoons, skunks, red foxes, and feral cats. Populations of these species may be sustained, at least in part, by the availability of anthropogenic food obtained from the landfill and recyclery. These nuisance species may then adversely affect sensitive wildlife species elsewhere in the South San Francisco Bay, including the neighboring Don Edwards San Francisco Bay National Wildlife Refuge, through direct predation or competition for resources. Gulls may also have adverse effects on drinking water quality in Bay Area reservoirs, and gulls that forage at the landfill in winter and breed in other regions could adversely affect sensitive species outside the Bay Area. Additionally, providing conditions suitable for the reproduction of mosquitoes could result in the support of mosquito populations, potentially affecting human health by acting as a vector for disease.

This nuisance species abatement plan (NSAP) has been developed for the landfill and recyclery and will be implemented during all material processing at these facilities. The purpose of the NSAP will be to minimize the numbers of nuisance species using the landfill and recyclery, and consequently reduce their impacts on sensitive species outside the landfill/recyclery boundaries.

This NSAP is designed to continue and improve upon previous control measures that have been implemented by the landfill and recyclery. These measures include:

- Reducing availability of food supply at the landfill by maintaining a small working face and through the compaction and daily cover of refuse
- Eliminating sources of water through drainage controls which prevent ponding of water
- Use of blank-firing guns and other pyrotechnics, paintball guns, trained falcons, trucks/ATVs, and propance cannons by landfill personnel to minimize birds' desire to land at the landfill
- Compaction and daily cover of refuse with soil to eliminate rodent habitat and food
- Covering of tire piles with a tarp, rapid processing of tires, and regular inspection of tires for mosquitoes
- Covering wastes with compacted soil or an approved alternative, and minimizing the work area over which refuse is spread to prevent the emergence of flies from eggs present in household wastes
- Diligent cleaning and housekeeping in the recyclery
- Monthly service by a rodent control contractor

Initial data on the effectiveness of gull abatement activities at Ox Mountain and Newby Island Landfills suggest that such measures can be highly successful in reducing the numbers of gulls

foraging on refuse (SFBBO 2008, Vasoncellos pers. comm.). In particular, abatement using a mixture of techniques appears to be more effective than pyrotechnics alone. Although abatement activities at Newby Island have been effective, evidence of habituation by some nuisance birds to the abatement measures suggests that adaptive management of abatement measures and continued monitoring will be necessary to restrict nuisance bird use of the landfill to low levels.

The project proponent has had a comprehensive NSAP prepared that will be implemented as part of the Newby Island Landfill Expansion Planned Development project. This plan describes measures that will be used to limit adverse effects of nuisance species by limiting the numbers of nuisance species that receive food subsidies at the landfill and recyclery. The primary focus of these measures is limiting availability of food waste to the nuisance species and access to food waste by these species, rather than physical or lethal control of nuisance species. Because some of the measures proposed in this plan have not yet been used at the landfill and recyclery, and because other, more effective measures may become known before the closure of the landfill in 2025, this plan is meant to be adaptive. Monitoring of the success of this plan in reducing numbers of nuisance species will be conducted to inform the management process, and abatement measures will be adapted as necessary to ensure the success of the plan. Although there are some existing data regarding the use of the landfill and recyclery by nuisance species, particularly gulls, these data have been collected rigorously for only relatively short time periods. Given the potential for significant interannual variability in numbers of some nuisance species, longer-term monitoring may be necessary to more accurately determine the levels of nuisance species use (and thus, the effectiveness of nuisance species management) that will be considered successful. As a result, this plan also describes the process by which the monitoring results will be evaluated to determine the success of abatement activities and the need for adaptive management. Implementation of the plan will be the responsibility of the General Manager or Director of Infrastructure Development of the landfill operator, while the City of San Jose's Director of Planning, Building, and Code Enforcement will oversee and enforce the plan's implementation.

NUISANCE SPECIES AT NEWBY ISLAND LANDFILL AND RECYCLERY

Following is a brief overview of the nuisance species that occur, or are expected to occur, at Newby Island landfill and the recyclery. More information on these species, and on their adverse effects on more sensitive species and potentially on human health, may be found in the Newby Island Landfill Expansion Planned Development EIR.

Gulls. Currently, the landfill and recyclery attracts, and provides food subsidies for, thousands of gulls. During the breeding season, most of the gulls occurring at the landfill are South Bay-breeding California gulls. During the non-breeding season, particularly from October through March, the principal gull species foraging at the landfill are California, herring, ring-billed, western, glaucous-winged, and Thayer's gulls. Gull counts conducted in April through August 2006 by SFBBO and USGS (Ackerman et al. 2006) indicate that California gulls are the most numerous gull species during that season. The average abundance of California gulls at Newby Island during these surveys was 3877 gulls, substantially more than at Tri-Cities landfill (1738) and at Palo Alto's landfill (49) (Ackerman et al. 2006). These counts represented the highest number of individuals observed at any one time. However, observations of gulls here and elsewhere in the South Bay show a high rate of turnover, with gulls constantly moving in and out

of the landfill during the day. As a result, the number of different individuals using the landfill in a given day is substantially higher than the maximum number recorded at a given time.

SFBBO (2008) continued gull surveys at Newby Island Landfill between February 2007 and December 2008 to determine the effectiveness of the gull abatement program that was initiated at the landfill in June 2008. SFBBO recorded a total of 549,668 observations of gulls using the Newby Island Landfill during 369 surveys between 26 February 2007 and 31 December 2008, representing a mean of nearly 1500 gulls/survey. However, the number of gulls using the landfill was significantly lower after the initiation of gull abatement activities than during the same month in 2007, prior to the implementation of the abatement program. For example, mean numbers of gulls per survey observed on the ground during the summer months, when most gulls using the landfill are locally breeding California gulls, declined from approximately 900, 1000, and 1250 in June, July, and August 2007 to 250-300 during each of those months in 2008. During the fall and early winter months, when several species of gulls use the landfill, mean counts of gulls on the ground per survey ranged from approximately 1600 to 3200 in 2007 but remained below 500 in 2008, after the gull abatement program was initiated.

Gulls counted on exposed refuse, as opposed to portions of the landfill where waste was not being actively dumped, varied from 23% in August 2007 to 93% in June 2007, with the other gulls during the survey period using non-refuse areas and partially exposed refuse areas (SFBBO 2007, Hudson 2008). On the exposed refuse, over 75% of the California gulls surveyed were foraging (Hudson 2008). Although the number of gulls present on the ground, and in surrounding ponds, declined considerably between 2007 and 2008, presumably in response to the gull abatement program, the proportion of gulls that were foraging at the active landfill face increased after the abatement program began (2008).

Other high counts of gulls at Newby Island have included 33,000 (including 8000 California gulls) on 22 December 1998 and 24,000 (including 8000 California gulls) on 24 February 1998 (Santa Clara County Bird Data). Other gull species observed in high numbers at Newby Island include herring gulls (9000 on 19 December 1997; 24,000 on 22 December 1998; 20,000 on 8 March 2000), western gulls (200 on 19 February 1997; 400 on 22 December 1998), glaucous-winged gulls (300 on 19 December 1997; 800 on 24 February 1998), and Thayer's gulls (300 on 19 December 1997; 350 on 24 February 1998; Santa Clara County Bird Data). High gull counts recorded prior to the closure of the Tri-Cities Landfill in 2007 were likely the result of the availability of food at, and the close proximity of, both landfills simultaneously, as gulls were frequently observed moving between the two landfills prior to 2007.

Preliminary USGS radio-telemetry data indicate that California gull daily movements are influenced by the Newby Island Landfill, as gull attendance at the landfill appears to be correlated with the hours of operation and roosting sites are in close proximity to the landfill (J. Ackerman, pers. comm. 2008). These California gulls nest on levees and islands within the salt pond complexes in the South Bay, and they and the other gull species roost and forage in the salt ponds, on islands and levees, and on mudflats in the South Bay (SFBBO 2007, Santa Clara County Bird Data).

California gull breeding populations in the South Bay have rapidly increased since 1982, when they were first recorded breeding here, to over 36,000 breeding birds in 2007 (Strong et al. 2004, Ackerman et al. 2006, SFBBO 2007, Hudson 2008). While the Newby Island Landfill was in operation long before California gulls began nesting in the South Bay, and this landfill has certainly not been solely responsible for the increase in nesting gulls here, the availability of a dependable food source at Newby Island has likely contributed to the increase in California gulls in the South Bay region.

Corvids. Populations of common ravens and American crows have increased markedly in recent decades throughout the Bay area, and common raven numbers in particular have increased considerably in the South Bay over the past 2 decades (Bousman 2007). These species feed heavily at the landfills around the South Bay but also feed on anthropogenic food waste and agricultural waste from other sources, as well as preying on other wildlife species.

Non-native Mammals. Several non-native mammal species occurring in the South Bay, including the red fox, Norway rat, roof rat, feral cat, Virginia opossum, and the extremely common house mouse, take advantage of anthropogenic food sources and are expected to forage on food waste at Newby Island Landfill and the recyclery. The feral cat is fairly common in upland habitats around the South Bay (Foerster and Takekawa 1991, Takekawa 1993), whereas the Norway rat and roof rat occur in most habitat types in the region. These species prey on sensitive native species in the South Bay and have the potential to impact local populations of these native species considerably.

Raccoons/Skunks. Although striped skunks and raccoons are native to the South Bay area, they have benefited from anthropogenic food sources, and they are expected to forage at the landfill and reyclery. They are also known to prey on the nests of a number of native birds, including the California clapper rail, American avocet, and black-necked stilt nests (Foerster et al. 1990, Ackerman et al. 2006). Thus, in the context of the sensitive habitats surrounding the Newby Island Landfill, and the special-status species that those habitats support, raccoons and striped skunks are considered nuisance species.

Mosquitoes. Mosquitoes may breed in fresh and brackish pools, including pools of water in tires or other debris, at the landfill and recyclery. They serve as vectors for several diseases that pose health concerns for humans and domestic animals. The western encephalitis mosquito is a vector of avian malaria and the main vector of western equine encephalitis and St. Louis encephalitis in the western United States (Maffei 2000). Anopheles mosquitos carry the organism that causes malaria. The West Nile virus is a mosquito-borne disease that has been found in parts of Asia, Eastern Europe, Africa and the Middle East. First detected in the U.S. in 1999 in New York City, West Nile virus has since spread through most of the U.S. West Nile Virus is typically spread from an infected mosquito, usually in the genus *Culex*, to a bird that then disperses or migrates, spreading the virus after being bitten by other mosquitos. Most people and domestic animals that become infected with the virus have few or no symptoms, but in rare cases they can become seriously ill. From 2003 through 2007, 2,320 human infections from in California have been detected, with 75 West Nile virus-related fatalities to date in California (http://westnile.ca.gov/). Also, 1,083 infections of horses and 9,215 dead birds (most of which were corvids) tested positive for the virus in that time frame.

NUISANCE SPECIES ABATEMENT MEASURES

The main objective of the nuisance species abatement measures is to control access of nuisance species to food waste at the landfill and recyclery facilities (and, for mosquitoes, to limit areas providing suitable breeding habitat), which is expected to reduce the number of individuals of these species that receive sustenance from the landfill and recyclery. To achieve this, two groups of abatement measures will be implemented: 1) standard measures, and 2) adaptive measures. Standard measures will be incorporated into all landfill and recyclery management activities starting with the implementation of the abatement plan and continuing until 2025, or when landfilling activities cease on the site. These are measures that are known to be successful, even necessary, to control nuisance species numbers and/or facilitate the implementation of other measures. Adaptive measures are methods of nuisance species control that can be used in various combinations and tested for effectiveness via the monitoring and adaptive management program. It is anticipated that implementation of the standard measures alone will not be adequate to achieve the success criteria outlined in this plan. Rather, a combination of standard and adaptive measures will be necessary to achieve adequate control of nuisance species numbers on the site. Abatement measures must be adaptable and can be modified as necessary, based on the measures' effectiveness, as determined by monitoring results.

For as long as food waste is processed at the landfill and recyclery, nuisance species will be attracted to the site, and abatement measures will have to be employed. For any given nuisance species, there are no feasible measures that will provide long-term management of nuisance species numbers at the site without ongoing, rigorous implementation of abatement measures.

Standard Measures

Minimization of the Working Face of the Landfill. The active face of the landfill where food waste is being actively dumped and buried will be kept to the minimum size necessary to allow normal landfilling activities. This will limit the availability of food to all nuisance species. This measure will also limit the area in which other measures (such as covering refuse or use of noise-markers) need to be implemented, thus facilitating and increasing the effectiveness of other abatement measures. Target species include gulls, corvids, and all nuisance mammals.

Compacting and Covering Refuse. All refuse material containing food waste at the landfill will be compacted and covered with compacted soil, or an approved alternative, as soon as it is feasible to do so while allowing normal landfilling activities; tarps, foams, or other materials may be used in lieu of soil if they are demonstrated to impede access to food waste by nuisance species, if they are stable (e.g., if substances such as foam do not dissipate or blow away), and if they will not have any unintended adverse effects (e.g., such as might result from chemical foams blowing into sensitive habitats outside the landfill). This will limit the ability of gulls and corvids to obtain food during the dumping process. To limit the availability of food waste to nocturnal mammals, all refuse material will be covered at the end of the work day and the active area will remain covered until the start of landfilling activities the following work day. This abatement technique will reduce available food to all nuisance species, including gulls, corvids, and all nuisance mammals. Outdoor food waste processing on the Recyclery property attracts gulls and other nuisance species to an area of the site where the various abatement measures (pyrotechnics, cannons, etc.) are not generally used and may be inconvenient. Measures to

control access to food waste by gulls and other nuisance species at this location must be implemented, including a building enclosure or netting.

Covering and Rapid Processing of Tires. Tires and other debris or materials that could collect water will be kept covered, either with a tarp or inside a container, and they will be processed as quickly as is feasible to prevent water from pooling inside the tires, thus reducing the availability of mosquito breeding sites. These measures are particularly important during the rainy season, when the tires and debris may contain water, but will be implemented year-round since tire piles may provide cover for nuisance mammals as well. Tire piles will not be located near sensitive habitats, such as the wetlands surrounding the landfill, to avoid providing cover for large numbers of nuisance mammals close to areas where special-status species such as California clapper rails and salt marsh harvest mice occur. Tire piles, and other areas capable of holding stagnant water, will be inspected weekly for mosquitoes.

Minimization of Surface Water. The landfill site includes two detention basins that collect runoff from the landfill, thus preventing it from entering sensitive habitats adjacent to the landfill. All other, unnecessary surface waters, including puddles, unnecessary ditches, ruts, and pools, will be drained, filled, or otherwise eliminated. This measure will minimize breeding habitat for mosquitoes, bathing sites for gulls, and sources of drinking water for nuisance birds and mammals. Target species include gulls, corvids, all nuisance mammals, and mosquitoes.

All piles of tires, debris, and equipment that have the capacity to collect water, as well as any other areas of standing water on the site, will be inspected at least once per week for the presence of mosquito larvae and other nuisance insects. If larvae are detected, the water sources will be removed, or they will be treated using one or more of the measures described under *Adaptive Measures* below, in consultation with the Santa Clara County Vector Control District.

Mammal Trapping. Weekly trapping for medium-sized mammals (e.g., red foxes, feral cats, raccoons, and striped skunks) will occur at regular intervals along the entire perimeter of the landfill site, including storage and staging areas such as the "D-shaped Area" and around the perimeter of the recyclery. These traps may include Tomahawk traps or similar sized traps that will have large enough mesh to avoid trapping non-target small mammals, such as the salt marsh harvest mice. The inspection of traps, removal of captured nuisance animals, and release of non-target species will occur within 12 hours of trap deployment. Any non-target species (e.g., gray foxes) will be released in appropriate areas, with approval from the necessary resource agencies, while target species will be euthanized. Cats wearing collars will be transported to the Humane Society of Silicon Valley or the Silicon Valley Animal Control Authority, or if the collars bear owner contact information, then the owner will be contacted. All trapping procedures, including the euthanasia of nuisance animals, will follow CDFG regulations, and any necessary approvals from the CDFG will be obtained prior to implementation.

Small mammal traps (e.g., snap traps for mice and rats) will be deployed inside the recyclery buildings. The traps will be checked and re-deployed weekly. This abatement technique will target small nuisance mammals including house mice, Norway rats, and roof rats. Because these traps will be indoors, they are expected to result in minimal mortality of native mammals, and they will not result in mortality of more sensitive native species such as salt marsh harvest mice.

Minimization of Cover near Nuisance Species Food Sources and Sensitive Habitats. Piles of debris, equipment, or non-food waste provide cover for nuisance mammals. It is understood that piles of such materials will occur at various locations around the landfill and recyclery, as required by the normal landfilling process. However, an effort will be made to limit the number and size of such piles, and to locate them far enough from the active face of the landfill and from the recyclery that they do not provide optimal conditions for nuisance species (i.e., good cover close to food resources). These piles also will not be located near sensitive habitats, such as the wetlands surrounding the landfill, to avoid providing cover for large numbers of nuisance mammals close to areas where special-status species occur.

Adaptive Measures

Pyrotechnics. Pyrotechnics such as rockets, shell crackers, blank shells, and propane cannons may be used at the locations where food waste is being processed, both at the landfill dumping face and at the recyclery, particularly in conjunction with other abatement activities. Propane cannons can be manually operated or programmed to fire at regular or random intervals. Shell crackers are typically fired from a shot gun and blank shells can be fired from "starter pistols". Blank shells can be in the form of "screamers" and "bangers" which are small projectiles that are manually fired from guns. Rockets are manually fired and typically have a relatively silent ascent followed by a loud explosion, thereby having a different effect than gas guns.

Exploding shells have been found to be effective in repelling and dispersing birds at landfills (Southern and Southern 1984, Davis and Davis 1984), and propane cannons are effective in some situations as well (Salmon and Conte 1981, Salmon et al. 1986, DeFusco and Nagy 1983). However, target species frequently habituate to these noisemakers, particularly if the noisemakers are not accompanied by other measures representing more of a direct biological deterrent, such as falcons, dogs, or alarm/distress calls (Transport Canada 2008). Colussy (pers. comm.) has found noisemakers to be effective in conjunction with trained falcons. Noisemakers were implemented at Newby Island Landfill prior to the initiation of a more comprehensive gull abatement program, with limited, short-term success. When combined with other measures, including the use of falcons, paintball guns, and vehicles, in June 2008, gull abatement at Newby Island became much more effective (SFBBO 2008).

Noisemaker abatement techniques can be effective against birds such as gulls and corvids. However, care will be taken to ensure that these measures are not employed in close proximity to sensitive habitats and species, such as California clapper rails.

Paintball Guns. Paintball guns serve both as noise-makers and non-lethal measures to discourage nuisance birds, such as gulls and corvids.

Vehicles. The use of vehicles such as trucks or all terrain vehicles (ATVs) to flush birds, in combination with pyrotechnics and other measures, has been effective in reducing gull numbers at Ox Mountain Landfill (Robinson et al. 2009 in SFBBO 2008).

Trained Dogs. Trained dogs, supervised by a qualified dog trainer, can be effective in preventing gulls, corvids, and other avian species from landing on the active face of the landfill and from roosting on other portions of the site.

Trained dogs can be used to hunt small and medium-sized nuisance mammal species out of buildings, debris piles, and other areas where mammals may hide (such as the recyclery area). Additionally, "watchdogs" can be used in specific areas, such as the active face or recyclery, at night to deter nuisance mammal species from foraging on food waste.

Such dogs will be well trained and supervised to prevent them from causing the injury or mortality of non-target species.

Trained Falcons. A qualified falconer may use trained falcons, or other raptors, to prevent gulls and other avian species from obtaining food from the landfill and recyclery, and from roosting on the premises. Abatement falcons are trained to perform aerial maneuvers designed to frighten gulls and other species. Falcons have been a component of the effective gull abatement program initiated at the Newby Island Landfill in June 2008, and falconry techniques have been used successfully at landfill sites in a number of other locations, including Ontario (Blokpoel 1980), Simi Valley (Waste Management 2008), Ox Mountain (Vasoncellos pers. comm., SFBBO unpublished data). Falconry is often used in combination with other techniques for nuisance bird abatement (Transport Canada 2008).

Falcons used for nuisance species abatement may occasionally interact with other raptors, and on rare occasions either the abatement falcon or naturally-occurring raptors injured during such interactions (Vasoncellos pers. comm.). As a result, only well trained falcons and falconers will be used for abatement purposes, and adverse effects on non-target species will be documented and reported to ensure that the use of falcons has a net benefit on sensitive resources in the area.

Human Disturbance. Active human disturbance can be used to chase nuisance species from the landfill and recyclery. This may include the use of ATV's or a combination of other abatement techniques. Target species include gulls, corvids, and medium-sized mammals.

Distress Calls. An amplified recording of distress calls, especially of the most common gull species, may be used to dissuade gulls and other avian species from obtaining food from the landfill and recyclery, and from roosting on the premises. Distress/alarm calls seem to be more effective, and have lower rates of habituation, than other noisemakers because there is a biological basis for birds to be deterred by them. Distress/alarm calls have had some success at airports, landfills, and reservoirs (DeFusco and Nagy 1983, Payson and Vance 1984, Transport Canada 1986, BSCE 1988, Howard 1992). Distress calls seem to be most effective in combination with pyrotechnics, models of dead or injured gulls, or other deterrent measures (Transport Canada 1986, 2008).

Predator Calls. An amplified recording of the calls of predators, particularly raptors, have been used with some success in deterring birds. For example, taped peregrine falcon calls were effective in dispersing gulls from Vancouver International Airport (Gunn 1973, LGL Ltd. 1987). Such calls could be broadcast from speakers near the active face of the landfill, from mobile

sources such as vehicles, or from the recyclery. Care will be taken not to broadcast such calls in close proximity to marshes where California clapper rails occur.

***Decoys of Distressed Bird*s.** Decoys imitating wounded or dead birds, particularly gulls, can be deployed in strategic locations around the landfill and recyclery. Strategically placed or positioned models of dead or injured gulls, or dead gulls themselves, have been used to repel gulls at airports, breeding colonies, and other areas (Stout et al. 1974, Naef-Daenzer 1983, Koski and Richardson 1976, DeFusco and Nagy 1983). In some cases, these models (or dead gulls) are thrown in the air when noisemakers are employed to associate the pyrotechnics with injury to gulls (Transport Canada 2008). These decoys will be most effective when used simultaneously with distress calls, pyrotechnics, raptors, dogs, and other abatement techniques. Any necessary permits from the USFWS or CDFG to possess birds or parts of birds will be obtained prior to the use of dead gulls for this purpose.

***Visual Distraction/Deterrent Devices*.** Objects such as kites, balloons, flags, scarecrows, raptor or coyote effigies, and inflatable "scary man" devices can be used to deter nuisance avian species from foraging and roosting at the landfill and recyclery, particularly at times when human activities are limited on the site. Devices like raptor effigies and inflatable objects can be programmed to activate at regular or random intervals, or can be radar activated which has been shown to increase effectiveness (Ronconi et al. 2004, Ronconi and St. Clair 2006). These devices are likely to have a greater impact when used simultaneously with other abatement techniques, as gulls and corvids will likely acclimate to these disturbances without the presence of humans, raptors, or dogs. In areas where these measures have been effective, the devices need to be moved periodically to inhibit habituation (DeFusco and Nagy 1983, LGL Ltd. 1987). Target species included gulls and corvids.

***Vegetation Management*.** Gulls roost and forage primarily in areas with unobstructed views that are relatively devoid of vegetation. These areas include portions of the landfill that have been recently active or areas that have short, sparse vegetation. Maintenance of taller vegetation has been found to deter gulls from roosting and foraging in some areas (Brough and Bridgman 1980, Hupf and Floyd 1995). To prevent gulls from roosting on the landfill, all areas of the landfill that are expected to be inactive for extended periods (i.e., more than a month) will be managed to produce vegetation that is at least 10 in tall in order to preclude gulls from roosting. Bare soils will be hydro-seeded with a mixture of appropriate seed, mulch (can be obtained on-site), and fertilizer. Qualified biologists will be consulted to determine the appropriate species (natives preferred), timing of planting certain species, and the time of year that vegetation should be removed, if necessary, to avoid impacts to nesting bird species.

***Physical Barriers and Roost Deterrents*.** Physical barriers to impede avian nuisance species from obtaining access to food waste may be implemented in strategic areas. Wire mesh, or "gull wire" may be deployed in areas like the recyclery to prevent gulls and other birds from landing on compost or other potential food sources. Physical barriers will not be placed in areas where they would pose a risk to non-target bird species flying through the area, and therefore consultation with a qualified biologist will be necessary. If gulls, corvids, or other birds are entering the recyclery building, plastic strips may be hung in open entranceways to prevent access to the building. All rooftops, light posts, signs, and other structures can be fitted with

stainless steel "bird spikes" that prevent avian species from roosting on the site. Also, electric shock strips or shock tracks may be installed and maintained to prevent birds from roosting.

Barriers at the bases of the fencing around the recyclery can also be used to prevent small and medium-sized nuisance mammals from moving between the recyclery and adjacent, more natural areas to the south. Smooth sheet metal, plastic, or other material at the base of the fencing can prevent small mammals from crawling through or climbing over the fence. Although these mammals would still be able to access the recyclery from the Dixon Landing Road side, limiting access to certain areas may facilitate trapping by concentrating access in fewer areas.

Rodenticides. If small mammal trapping is not sufficiently effective, then rodenticides may be used to reduce the number of nuisance rodents using the landfill and recyclery. The use of rodenticides is an adaptive abatement measure, rather than a required measure, because of the risk of secondary poisoning of raptors and other predators that may feed upon poisoned rodents. A qualified professional will recommend the appropriate type of rodenticides to be used (i.e., substances with little or no potential for secondary poisoning), and these rodenticides will be approved by the Director of Planning, Building, and Code Enforcement (see *Oversight and Enforcement* below). Only qualified, trained personnel will apply these rodenticides, and a program for finding and removing target animals killed by the rodenticides will be developed, approved by the Director of Planning, Building, and Code Enforcement, and implemented stringently.

Mosquito Larvicides. If the covering of tires and minimization of surface water (source prevention) does not adequately control mosquito production at the landfill and recyclery, or if it is not feasible for all surface water to be drained at certain times of year when mosquitoes are hatching, then control of larvae through chemical means will be implemented. Larvicides employed by South Bay mosquito abatement agencies include "Golden Bear 11 11" (a short-lived petroleum distillate that is applied to the surface of the water and causes mosquito larvae to drown), methoprene (a juvenile growth hormone that specifically targets mosquito larvae and prevents their maturation), and *Bacillus thuringensis israelis* (a bacterium that is toxic to mosquito larvae). Any chemical or biological methods used to control mosquitoes on the landfill and recyclery will be developed in consultation with the Santa Clara County Vector Control District, and both the Vector Control District and the Director of Planning, Building, and Code Enforcement will approve the specific substances used for mosquito control.

INITIAL ABATEMENT APPROACH

Initial abatement measures will include all of the standard measures listed above. Although mosquito control may require the use of chemical or biological control measures specified in the *Adaptive Measures* section, these standard measures are expected to be adequate to serve as initial mosquito and nuisance mammal control efforts.

The gull abatement measures implemented at Newby Island Landfill in June 2008, including the use of trained falcons, paintball guns, and trucks in addition to pyrotechnics and propane cannons, were shown to be highly effective at reducing the numbers of gulls using the landfill, and the initial approach of this NSAP is to use this multiple-technique approach to control gull and corvid numbers at the landfill. However, SFBBO (2008) observed habituation by some birds

to the abatement measures, and it is possible that variation in the techniques employed will be necessary to restrict nuisance bird use of the landfill to low levels. Also, it is recognized that some of the abatement measures listed in this document may be found to be infeasible, may not be cost effective, or may not be completely successful at the landfill and recyclery, even in combination with other measures. The NSAP is therefore meant to be adaptive so that the abatement and monitoring measures can be adapted based on information provided by prior abatement efforts and monitoring results (see *Adaptive Management* below).

MONITORING

Monitoring of nuisance species' responses to abatement measures is a critical component of the NSAP and the adaptive management strategies employed at the landfill and recyclery. Monitoring is required to determine the number of areas requiring mosquito control (to gauge success in reducing the number of areas with mosquito breeding conditions), the number of mammals that are trapped (to gauge success in reducing numbers of nuisance mammals at the site and the site's attractiveness to these species), and the number of nuisance birds that are attracted to and using the landfill. The following sections outline the monitoring approach that will be implemented, under the direction of the General Manager or Director of Infrastructure Development of the landfill operator, for each group of species.

Gulls. Monitoring of gull responses to abatement measures will be the most critical component of the monitoring process, given that gulls, particularly California gulls, have the greatest potential to depredate and compete with sensitive species over a broad area, and they are the most numerous group of species that forage at the landfill and recyclery. Gull surveys will be conducted by qualified ornithologists (i.e., ornithologists capable of identifying gulls to species and age class) to estimate numbers of gulls, determine which species of gulls are at the landfill, and determine the general compass direction of gull arrivals and departures. These surveys will be critical in determining what effect abatement measures are having gulls and will help elucidate the impacts of gull foraging at the landfill and recyclery on South Bay natural resources.

Gull surveys will be conducted on a weekly basis throughout the year for the first year the NSAP is implemented. After the first year, surveys may be reduced depending on the effectiveness of abatement measures (see *Adaptive Management* below). If abatement measures prove highly effective, survey frequency may be reduced even during the first year, pending review of monitoring data and approval by the Director of Planning, Building, and Code Enforcement. Once per week, on a weekday when the landfill is receiving waste, one observer will be stationed at a viewing station that overlooks the active face of the landfill, beginning at first light, or about 30 minutes before sunrise, until dark. The observer will use binoculars and a spotting scope during survey periods. Counts of total numbers of gulls resting on the landfill, flying just above the landfill, and roosting or foraging on the open face will be tallied once every other hour. Following each count, an estimate of the proportion of each gull species and proportion of gull age classes will be made by counting sample subpopulations at the landfill. These surveys are expected to take approximately 15-20 minutes. After counting and estimating proportions of species and age classes, the observer will spend 15 minutes estimating numbers of incoming and outgoing gulls (by species if feasible), noting time and direction of arrival at and departure from the landfill. The observer will repeat the same survey process for the recyclery the next hour,

alternating between the landfill and the recyclery in alternate hours. The observer will opportunistically record any interactions that raptors used for abatement have with native species (especially naturally occurring raptors), responses of gulls to abatement measures, and his/her impression of the effectiveness on gulls of various abatement techniques being employed. Measurements of wind speed, temperature, and percent cloud cover will be taken at least three times daily. These observations will then be used to estimate, giving a low and high range, the number of different individual gulls and the turnover rate of gulls using the landfill during the day.

Corvids. Surveys for American crows and common ravens will be conducted weekly at the landfill concurrent with the gull surveys as described above. Counts of total numbers of corvids (crows and ravens) resting on the landfill, flying just above the landfill, and on the open face will be tallied once every other hour. These surveys will be conducted by qualified ornithologists simultaneously with the gull surveys. After counting individuals, the observer will spend exactly 15 minutes counting incoming and outgoing corvids during the survey, noting time and direction of arrival at and departure from the landfill. The observer will then repeat the survey process for the recyclery, ending the survey after one hour and repeating the process at the start of the next hour. The observer will record the responses of corvids to abatement measures and his/her impression of the effectiveness on corvids of various abatement techniques being employed. Measurements of wind speed, temperature, and percent cloud cover will be taken at least 3 times daily. These observations will then be used to estimate, giving a low and high range, the number of individual corvids and the turnover rate of corvids using the landfill during the day.

Small and Medium-sized Mammals. Monitoring of small and medium-sized mammals will be necessary to determine the abundance of nuisance mammals that use the landfill and recyclery, what portions of the site they use, seasons of greatest abundance, and the effectiveness of ongoing abatement techniques used to minimize their access to food waste. Accurate trapping records will be kept. Each individual mammal captured in mammal traps will be identified to species, and the location of every trapping event will be recorded. These locations will be described at a level of detail (e.g., a certain part of the recyclery, or UTM coordinates for each medium-sized mammal trap) adequate to inform future abatement efforts. A spatial analysis of the species captured and variability in seasonal abundance of nuisance mammals will inform the adaptive management process and allow for concentration of trapping efforts in locations and seasons that will be most effective in reducing nuisance species access to food waste.

To ensure that soil coverage of the active face is effective in reducing nocturnal foraging by nuisance species (presumed to be primarily mammals) at the landfill and recyclery, a nocturnal survey of the site will be conducted twice per month during the first year the NSAP is implemented. After the first year, surveys may be reduced depending on the effectiveness of abatement measures (see *Adaptive Management* below). This survey will be conducted by a qualified biologist on two randomly selected nights within the calendar month. Surveys will begin 1 hour after sunset and will last 4 hours. The surveyor will drive and walk around the entire site, and inspect the active landfill face for nuisance species using spotlights and/or night-vision goggles. All nuisance species and their behaviors will be recorded.

Mosquitoes. Landfill staff (or others, if mosquito control is implemented by contractors or Vector Control District staff) will maintain records of the level of need for mosquito abatement, based on the number, size, or occupancy rate of locations supporting mosquito larvae or suitable breeding conditions. If chemical or biological measures are used to control mosquitoes, records will be kept of the type of measure, the intensity of control (based on the frequency and amount of the substance used), and the effectiveness of treatment.

SUCCESS CRITERIA

Completely eliminating nuisance species access to the landfill and recyclery is not feasible, and thus abatement success cannot be measured as the complete absence of nuisance species. For each group of nuisance species addressed by this plan, success of this abatement plan will be defined as maintaining or reducing abundance of nuisance species using the landfill relative to baseline levels. In other words, the abatement plan is not considered successful if measures of abundance of nuisance species exceed baseline levels.

Although some data exist regarding the use of the landfill and recyclery by nuisance species, particularly gulls, these data have been collected rigorously for only relatively short time periods (i.e., by SFBBO since 2007). Given the potential for significant interannual variability in numbers of some nuisance species, longer-term monitoring may be necessary to more accurately determine the levels of nuisance species use (and thus, the effectiveness of nuisance species management) that will be considered successful. The following sections provide some information on baseline numbers and describe the process by which the monitoring results will be evaluated to determine the success of abatement activities. These evaluations will be conducted by the Director of Planning, Building, and Code Enforcement and by qualified biologists selected by the Director, in the context of the annual report (see *Report and Review* below).

Gulls. Previous gull counts conducted in 2006 by SFBBO and USGS indicate that California gulls are the most numerous gull species between April and August. The average abundance of California gulls at Newby Island during recent survey counts was 3877 gulls (Ackerman et al. 2006) in 2006, and in 2007 the high count of California gulls was 3612 in the month of February (SFBBO 2007). Other high counts of gulls at Newby Island have included 33,000 (including 8000 California gulls) on 22 December 1998 and 24,000 (including 8000 California gulls) on 24 February 1998 (Santa Clara County Bird Data). Other gull species observed in high numbers at Newby Island include herring gulls (9000 on 19 December 1997; 24,000 on 22 December 1998; 20,000 on 8 March 2000), western gulls (200 on 19 February 1997; 400 on 22 December 1998), glaucous-winged gulls (300 on 19 December 1997; 800 on 24 February 1998), and Thayer's gulls (300 on 19 December 1997; 350 on 24 February 1998; Santa Clara County Bird Data).

These counts represent the highest number of individuals observed at any one time. However, observations of gulls here and elsewhere in the South Bay over the years show a high rate of turnover, with gulls constantly moving in and out of the landfill during the day. As a result, the number of different individuals using the landfill in a given day is substantially higher than the maximum number recorded at a given time. However, high gull counts recorded prior to the closure of the Tri-Cities Landfill in 2007 were likely the result of the availability of food at, and

the close proximity of, both landfills simultaneously, as gulls were frequently observed moving between the two landfills prior to 2007.

The most relevant dataset that can be used to provide the baseline abundance of gulls at Newby Island Landfill for comparison of future monitoring results is that obtained by SFBBO's surveys from June 2008 into 2009. These surveys demonstrate a substantial reduction in the numbers of gulls on the ground (and thus potentially obtaining food from the landfill and recyclery) following the implementation of a multiple-technique abatement approach, compared to pre-abatement numbers, and thus these data represent an appropriate target for future abatement efforts. SFBBO's data will include the mean number of gulls on the ground per survey, compiled by month (since gull abundance in the South Bay as a whole varies considerably throughout the year), for each month of the year following the initiation of the multiple-technique abatement approach.

Because gull abundance in the South Bay may vary considerably from year to year, the "baseline" against which future monitoring results will be compared to gauge the success of the abatement program is subject to change once the mean number of gulls on the ground per survey, compiled by month, from one or more additional years of monitoring is compared to or combined with SFBBO's data from 2008-2009. Qualified biologists selected by the Director of Planning, Building, and Code Enforcement, which may include City of San Jose staff, the City's consultants, and others (e.g., possibly SFBBO staff and/or Don Edwards San Francisco Bay National Wildlife Refuge biologists), will review the first year of monitoring data and provide recommendations to the Director of Planning, Building, and Code Enforcement regarding any changes in success criteria (including levels of abundance that should be considered the baseline against which monitoring results will be compared) as well as any necessary changes in abatement measures, monitoring measures, or other program components.

***Mammals*.** No rigorously collected data are currently available regarding populations of nuisance mammals at the landfill and recyclery, and therefore there are currently no baseline levels for comparison of future trapping success.

Predator management data from the Don Edwards San Francisco Bay National Wildlife Refuge provides some information regarding what could be expected to occur at the landfill and recyclery. In 1991, the Refuge implemented a predator management plan directed at the removal of red foxes, raccoons, striped skunks, and feral cats to protect the federally listed California clapper rail and western snowy plover (Harding et al. 1998). From spring 1991 to fall 1996, the average number of individuals removed from Refuge lands per year included 90 red foxes, 27 feral cats, 26 striped skunks, and two raccoons. In addition, 38 non-native opossums and 25 native gray foxes were captured and released. The numbers of red foxes trapped were consistent from 1991 to 1996, but trapping rates declined because more traps were used in successive years. Successful trapping required 46 traps/fox in 1991-1992 and 83 traps/fox in 1995-1996, suggesting that the trapping program was successful in reducing fox populations.

Because there is no existing baseline for nuisance mammal abundance at the landfill and recyclery, mammal trapping success criteria will be established within 1 year after regular, rigorous monitoring according to the monitoring approach described above has been initiated.

These criteria will be determined by qualified biologists identified and convened by the City of San Jose to review the Year 1 monitoring data, as described for gulls above.

***Mosquitoes*.** Because the presence of mosquitoes, and other nuisance insects, at the landfill and recyclery have previously been within acceptable levels (with ongoing management and monitoring), success criteria for abatement measures will be met if mosquito abundance does not exceed current levels. If mosquito abatement measures are followed and the operator's staff continues to work with the Vector Control District, then the success criteria will be met for these abatement practices. The Director of Planning, Building, and Code Enforcement will monitor success of mosquito abatement through communication with the Vector Control District and/or review of monitoring reports from the landfill.

***Interpretation of Monitoring Data Relative to Success Criteria*.** Although the success of the NSAP will be defined as no increase in abundance of nuisance species, it is necessary to acknowledge that short-term increases in abundance of certain species above baseline levels may occur from time to time. This may occur due to habituation of nuisance birds to certain abatement measures; short-term problems with implementation of certain measures (e.g., failure of mammal traps or lack of availability of trained falcons); temporal variability in abundance of species such as gulls in the South Bay as a whole (independent of food availability at Newby Island Landfill); or inappropriate identification of baseline levels (e.g., if the single year of data on gull abundance since multiple-technique abatement was initiated is not representative of a typical year). If monitoring data indicate an increase in abundance of nuisance species, the Director of Planning, Building, and Code Enforcement, with guidance from qualified biologists selected by the Director, will determine whether the short-term increase in nuisance species reflects a deficiency in the abatement program and will determine whether (and what) changes to the abatement program are necessary to remediate the deficiency. The goal of NSAP is long-term abatement of nuisance species issues, and thus success is most important over the long term.

ADAPTIVE MANAGEMENT

Due to uncertainties regarding the effects of various abatement measures on nuisance species (including the potential for habituation of nuisance animals to certain measures), all abatement measures for nuisance species at the landfill and recyclery, as well as the monitoring program outlined in this NSAP, are meant to be adaptive. After the initial abatement approach described above is implemented, monitoring will determine the responses of nuisance species to abatement efforts. In some cases, the effectiveness (or lack thereof) of certain abatement techniques will be apparent after a few days, weeks, or months. It is expected that the General Manager or Director of Infrastructure Development of the landfill operator will coordinate communication between personnel implementing these techniques and personnel performing the monitoring on an ongoing basis, and that ineffective or particularly effective techniques will be identified and discussed. Therefore, abatement techniques may be modified on a weekly or monthly basis if previous efforts were not sufficiently successful. In other cases, the effectiveness of abatement measures may not be apparent until the monitoring efforts for an entire season or year are assessed and discussed (as described in *Reporting and Review* below). Whatever the circumstances, abatement measures will be adapted as needed to increase their success. When

abatement measures are modified, records will be maintained of what changes were made and when to inform monitoring.

Each phase of management activities will be conducted based on the results of previous efforts and will take into account new information gathered by monitoring or as new techniques are developed. For instance, if certain abatement measures appear to be successful in reducing gulls access to food waste at the landfill, then those measures can be enhanced, while other, less successful, measures can be reduced or dropped completely. In the case of mammal trapping, monitoring may indicate that certain nuisance mammal species use particular regions of the site more than others, perhaps using certain levees as movement corridors. Therefore an increase in trapping effort in those areas, and a reduction in others, could increase the efficacy of overall trapping efforts. In some instances, a combination of measures may be required to be successful; therefore various combinations may have to be attempted until desired results are achieved.

Monitoring efforts will also be adaptive. For example, if abatement measures are determined to be highly successful for avian species, then gull and corvid monitoring could be reduced from weekly to bi-weekly or monthly. Also, nocturnal foraging surveys could be reduced in duration based on monitoring results.

The General Manager or Director of Infrastructure Development of the landfill operator, the Director of Planning, Building, and Code Enforcement, and those performing the monitoring, reporting, and review should draw on the experiences of falconers, local biologists, and abatement experts to modify and improve the abatement measures in this plan as needed. Flexibility, even with the standard measures, is a key component of the NSAP and therefore it is expected that the operators will work with the Director of Planning, Building, and Code Enforcement, local biologists, and others to find the combination of techniques that is most successful and efficient in reducing nuisance species foraging at the landfill and recyclery while allowing for normal landfill and recycling operations to continue.

This NSAP itself is intended to be a living document. Every two years, it will be updated to describe the latest abatement and monitoring methods being implemented; this update will also include a review of "new" abatement techniques being implemented at other facilities for consideration at Newby Island Landfill.

REPORTING AND REVIEW

A reporting and review process will be established by the General Manager or Director of Infrastructure Development of the landfill operator and the Director of Planning, Building, and Code Enforcement to assess the effectiveness of nuisance species abatement, and to help inform the modification of measures as necessary, with the goal of reducing nuisance species access to food waste at the landfill and recyclery. The reporting and review process will involve the following:

- A monthly review of the success or failure of abatement measures by the biological consultant. This review will be conducted by a consultant conducting the abatement monitoring, and the findings of this review will consist of a brief memo submitted to the Director of Planning, Building, and Code Enforcement.

- An annual report, compiled by the biological consultant conducting the abatement monitoring, will be presented to the Director of Planning, Building, and Code Enforcement by the end of February of each year, describing abatement measures and monitoring results for the prior year. The report will contain the following sections:
  - Abatement Methods – a complete description of all nuisance species abatement measures attempted during the year; this description will include the types of abatement, when and where they were used, and by whom they were implemented
  - Monitoring Methods – a complete description of all abatement measure monitoring activities that were conducted during the year
  - Monitoring Results – a summary and analysis of all the monitoring data collected throughout the year. The data will be summarized in text and also presented in the form of tables and figures as appropriate to clearly and concisely describe the monitoring data collected.
  - Discussion – a discussion section comparing the effectiveness of abatement measures
  - Recommendations – a discussion of recommendations for the next year outlining recommended changes in abatement or monitoring activities
  - Letters and Responses – a copy of all comment letters to the operators or the Director of Planning, Building, and Code Enforcement concerning nuisance species at the landfill and recyclery will be attached to the annual report. Responses to comment letters addressing issues outlined in the letters will also be included.
- The Director of Planning, Building, and Code Enforcement will select qualified biologists, which may include City of San Jose staff, the City's consultants, and others (e.g., possibly SFBBO staff and/or Don Edwards San Francisco Bay National Wildlife Refuge biologists), to review annual monitoring reports and provide recommendations to the Director regarding any changes in success criteria (including levels of abundance that should be considered the baseline against which monitoring results will be compared), abatement measures, monitoring measures, or other program components that should be made. This group of qualified biologists may also be consulted by the Director to discuss nuisance species abatement issues identified in monthly reviews. The costs associated with the City staff review and consultant costs will be borne by the landfill's General Manager or Director of Infrastructure Development.

OVERSIGHT AND ENFORCEMENT

The landfill operator, headed by the operator's General Manager or Director of Infrastructure Development, will be responsible for implementing the NSAP. The Director of Planning, Building, and Code Enforcement will be responsible for supervising and enforcing the NSAP to ensure that impacts of the Newby Island Sanitary Landfill and the Recyclery Planned Development project are less than significant under CEQA. The Director will review the annual reports, conduct periodic inspections of the landfill and recyclery to ensure that abatement measures are being implemented, and respond to complaints from third parties if nuisance species are not adequately controlled by the NSAP.

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