

**Appendix E**  
**Biological Resources Report**



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**NEWARK AREAS 3 & 4 SPECIFIC PLAN  
DRAFT ENVIRONMENTAL IMPACT REPORT  
BIOLOGICAL RESOURCES TECHNICAL REPORT**

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10 April 2009

Project No. 2596-04



## EXECUTIVE SUMMARY

The Newark Areas 3 and 4 Specific Plan Project proposes the future development of a golf course, residential areas, a school, and related infrastructure on two planning areas in the City of Newark, Alameda County, California (Figure 1). These Project elements will be phased, with residential development in Area 3 potentially occurring before the development of Area 4. Development within Area 4 may include a golf course, single-family detached houses, and neighborhood parks (Figure 2). Areas inside and outside the development envelope in Area 4 could be utilized for wetland preservation, wetland creation/enhancement or remain unchanged (continued agricultural operation).

Thirteen biotic habitats were identified in Areas 3 and 4. These include upland agricultural, agricultural field/seasonal wetland (saline to brackish), agricultural field/seasonal wetland (brackish to fresh), ruderal, developed, aquatic, diked salt marsh, muted tidal salt marsh, freshwater marsh, brackish marsh, seasonal wetland, coastal scrub, and wrecking yard detention basins. Area 3 is dominated by developed, ruderal, and upland agricultural habitats. Agricultural fields variously characterized as uplands or seasonal wetlands (saline to brackish and brackish to fresh) comprise the majority of Area 4 (Figure 4). The majority of Area 4, as well as the northeastern portion of Area 3, was in agricultural production when our surveys were conducted for the preparation of this report.

Several special-status plant species are known to occur in the region of the Project. However, many of these plants are associated with habitat types that do not occur within the Project area, occur at elevations outside of the range of elevations on the Project site, or are found only on specific soil types that do not occur within the Project site, leaving 33 species under consideration for potential occurrence on the site. Following an analysis of the microhabitat conditions associated with all of the California Native Plant Society (CNPS) and California Natural Diversity Database (CNDDDB) species considered, and the edaphic factors that favor their occurrence, eight of these 33 species were considered to potentially occur on the site: Contra Costa Goldfields (*Lasthenia conjugens*), alkali milk-vetch (*Astragalus tener* var. *tener*), Brittscale (*Atriplex depressa*), Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), Hoover's button-celery (*Eryngium aristulatum* var. *hooveri*), prostrate vernal pool navarretia (*Navarretia prostrata*), Delta woolly-marbles (*Psilocarphus brevissimus* var. *multiflorus*), and San Joaquin Spearscale (*Atriplex joaquiniana*). None of these species were observed during protocol-level or numerous reconnaissance-level site surveys of suitable habitat. In addition, in many cases species commonly associated with suitable habitat for the eight species were not observed during these surveys. Therefore, based on negative results of protocol-level surveys, lack of observations during numerous reconnaissance-level surveys, and our experience with the species in other locations, we determined that these species are absent from all of the proposed direct impact areas on the Project site, although they may occur in natural habitat areas that were not surveyed and that could be indirectly impacted by the project. Further surveys are not warranted for the purposes of this impact assessment; however, mitigation measures are prescribed to protect natural habitats where these species potentially occur.

A number of special-status wildlife species are known to occur in the site vicinity. Based on review of the CNDDDB, U. S. Fish and Wildlife Service (USFWS) species lists, and other sources, it was determined that many of the special-status wildlife species that are present in the region do not occur in the Project area because it lacks suitable habitat and/or is outside the range of the species. Many focused surveys for special-status wildlife species have been conducted on portions of the Project site over the past several decades. The special-status wildlife species for which focused surveys have been conducted include vernal pool tadpole shrimp (*Lepidurus packardi*), California tiger salamander (*Ambystoma californiensis*), burrowing owl (*Athene cunicularia*), and salt marsh harvest mouse (*Reithrodontomys raviventris*). We also conducted reconnaissance-level surveys for other special-status wildlife species.

Some special-status wildlife species may occur on the Project site only as uncommon to rare visitors, migrants, or transients, or may forage on the site in low numbers while breeding in adjacent areas, migrating or over wintering. However, these species are not expected to breed on the site, or to be substantially affected by the proposed Project. These species include the California least tern (*Sterna antillarum browni*), black tern (*Chlidonias niger*), western snowy plover (*Charadrius alexandrinus nivosus*), bank swallow (*Riparia riparia*), American white pelican (*Pelecanus erythrorhynchos*), golden eagle (*Aquila chrysaetos*), Vaux's swift (*Chaetura vauxi*), California yellow warbler (*Dendroica petechia brewsteri*), grasshopper sparrow (*Ammodramus savannarum*), western red bat (*Lasiurus blossevillii*), and Townsend's big-eared bat (*Corynorhinus townsendii*).

Several special-status wildlife species may occur on the site more regularly, are known to occur within the Project area, and/or may breed on the site. These include the vernal pool tadpole shrimp, California tiger salamander, northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus caeruleus*), peregrine falcon (*Falco peregrinus*), burrowing owl, loggerhead shrike (*Lanius ludovicianus*), Alameda song sparrow (*Melospiza melodia pusillula*), Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*), San Francisco common yellowthroat (*Geothlypis trichas sinuosa*), tricolored blackbird (*Agelaius tricolor*), pallid bat (*Antrozous pallidus*), salt marsh wandering shrew (*Sorex vagrans halicoetes*), and salt marsh harvest mouse. Limited areas of potential habitat for the vernal pool tadpole shrimp and California tiger salamander are present on the site. Surveys for vernal pool tadpole shrimp conducted according to USFWS protocol did not detect this species on the site. Protocol-level larval surveys for California tiger salamanders have been conducted and were negative.

Special-status fish species such as the green sturgeon (*Acipenser medirostris*), fall-run Chinook salmon (*Oncorhynchus tshawytscha*), Central California Coast steelhead (*Oncorhynchus mykiss*), and longfin smelt (*Spirinchus thaleichthys*) are known to occur within San Francisco Bay and may occur in Mowry Slough downstream from the Project site. However, they are not expected to occur as far upstream in Mowry Slough as the Project area. California clapper rail (*Rallus longirostris obsoletus*) and California black rail (*Laterallus jamaicensis coturniculus*) may occur in the adjacent Mowry Slough. A Pacific harbor seal (*Phoca vitulina*) pupping site is located along lower Mowry Slough, approximately 2 miles (mi) (4 stream mi) downstream from the Project area. The Yuma myotis (*Myotis yumanensis*), while not on the list of California species of special concern, is relatively rare in bayside areas in the South Bay. As a result, any maternity colony of this species, if present on the site, would be regionally significant.

We delineated the boundaries of jurisdictional Waters of the U.S. on the site. These included most of the wetland and aquatic habitat types present on the site, including seasonal wetlands (both within and outside agricultural fields), diked salt marsh, muted tidal salt marsh, tidal salt marsh, freshwater marsh, and brackish marsh habitats. Two stormwater quality detention basins and associated ditches on Area 4 and several areas supported by leaking irrigation lines on Area 3 were not considered jurisdictional Waters of the U.S. The United States Army Corps of Engineers (USACE) issued a jurisdictional determination on 11 October 2007 (USACE File #2006-400075S) verifying their jurisdictional boundaries, including approximately 242 acres (ac) of wetlands and 34.21 ac of other waters (total of 277 ac of jurisdictional Waters of the U.S.). All USACE jurisdictional areas are also jurisdictional Waters of the State regulated by the Regional Water Quality Control Board (RWQCB). In our opinion, no additional jurisdictional Waters of the State are present on the Project site (subject to RWQCB concurrence). The City of Newark claims jurisdiction over all ordinance-sized trees within the Project site. A formal tree survey was not conducted as part of this Draft Environmental Impact Report. However, several ordinance-sized trees occur within both Areas 3 and 4 of the Project site. If these trees are to be removed, a permit from the City of Newark will likely be required.

The Project will have a number of impacts to biological resources that were found to be less than significant: the loss of or temporary impacts to upland agriculture, ruderal herbaceous field, developed, and coastal scrub habitats and their associated wildlife species; impacts to habitat for and individuals of certain non-breeding and certain potentially breeding special-status wildlife species; impacts to California tiger salamanders; and impacts to wildlife movement.

Several Project impacts to biological resources are significant but will be reduced to less than significant levels with mitigation:

- The permanent loss of seasonal wetland, aquatic, and freshwater marsh habitat in Area 4 will be mitigated through the 1) avoidance and minimization of impacts to these habitats, and 2) the creation and enhancement of these habitats on-site. Such impacts will not occur in Area 3.
- Alteration of site hydrology in avoided wetlands and associated species in Area 4 will be mitigated by 1) minimizing changes to hydrology by avoiding single-point sources of water to wetland habitat to simulate the current flow patterns, 2) avoiding inadvertently draining isolated wetlands by inappropriate grading or sizing of culverts, 3) using native grass species on the golf course to prevent any significant decrease in the amount water flowing into preserved wetland habitats in winter months, 4) incorporating design features to minimize runoff from the golf course and residential areas to natural habitats during the summer months to maintain seasonal patterns, 5) limiting nuisance flows generated by the project development by conserving water, and 6) retaining any remaining dry-season nuisance flows within the development footprint. Such impacts will not occur in Area 3.
- Effects of fresh water inputs on salt marsh habitat (muted tidal and tidal) and associated species in Area 4 will be mitigated by implementing the same measures as those to mitigate alteration of site hydrology on avoided wetlands and associated species. Such impacts will not occur in Area 3.

- Impacts to water quality during construction-phase activities in Areas 3 and 4 will be mitigated by 1) incorporating best management practices (BMPs) to protect water quality during construction, 2) minimizing soil disturbance adjacent to wetland and marsh habitat in Area 4, 3) suppressing dust during construction, and 4) avoiding contamination of adjacent natural habitats during environmental cleanup of the auto wrecking yards in Area 4.
- Long-term impacts to water quality will be mitigated by incorporating BMPs into the Project design for Area 4 to maintain or improve the current quality of water leaving the site, potentially including 1) the mechanical treatment of water, 2) the use of grassy swales to capture contaminants, 3) the use of “planter boxes” to treat individual residential runoff, 4) the use of surface materials to allow for infiltration and retention of water on the site, and 5) the retention of water on the site. Such impacts will be minimal in Area 3.
- The spread of particularly invasive non-native plant species, such as fennel (*Foeniculum vulgare*), pampas grass (*Cortaderia selloana*), perennial pepperweed (*Lepidium latifolium*), and small-flower tamarisk (*Tamarix parviflora*), will be mitigated by implementing measures to reduce and prevent the spread of these species and by designing and implementing an invasive plant species management plan prior to grading or importation of fill material to the site.
- Impacts to burrowing owls in Area 4 will be mitigated by 1) performing pre-construction surveys for burrowing owls to determine if owls are on or within 250 ft of the site within 15 days prior to construction, 2) observing buffer zones around burrowing owls found on the site, 3) passively relocating owls from any occupied burrow that will be directly impacted by construction outside of the nesting season to prevent injury or mortality to individual owls, 4) enhancing and maintaining habitat for burrowing owls on-site after the completion of construction activities, and 5) improving burrowing owl habitat off-site by purchasing credits in an off-site mitigation bank or otherwise preserving 26 ac of occupied burrowing owl habitat off-site. Burrowing owls are not currently known to be present, and have not been recorded in recent years, in or near the areas of proposed development in Area 3.
- Impacts to nesting American peregrine falcons and tricolored blackbirds, if these species begin to nest on the site prior to construction, will be mitigated by 1) avoiding construction activities during the nesting season, 2) conducting pre-construction/pre-disturbance surveys if work is to occur during the breeding season, and 3) establishing buffer zones free from new, construction-related disturbance around any nests detected while those nests are active. These species may nest in or near development areas in Area 4 but will not be impacted by proposed development in Area 3.
- Impacts to pallid bats and Yuma myotis (if present) and day roosts of other bat species will be mitigated by 1) conducting surveys for roosting bats prior to the breeding season (prior to March 1) and 15 days prior to construction activities, 2) creating buffer zones around any bat maternity roost found during surveys from March 1 until the young are flying, 3) avoiding roost structures, 4) evicting bats from day roosts only at or after dusk prior to demolition or removal of the roost, and 5) creating alternate day roost structures for pallid or Yuma bats at least one month prior to the removal of the original roost structure. These species may roost in or near development areas in Area 4 but will not be impacted by proposed development in Area 3.

- Impacts to the salt marsh harvest mouse and salt marsh wandering shrew and their habitat in Area 4 will be mitigated by 1) avoiding or minimizing impacts to salt marsh harvest mouse and salt marsh wandering shrew habitat, 2) excluding individuals from construction areas, 3) monitoring construction of exclusion barriers, removal of vegetation, and initial clearing and grubbing within 10 ft of the exclusion barrier and salvaging individuals detected during monitoring, 4) restoring habitat on-site for any habitat that is permanently lost due to fill or isolation at a 3:1 ratio by the creation or restoration of pickleweed-dominated salt marsh on the Project site, and 5) restoring habitat on-site for any habitat that is not directly filled but that is located within 100 ft of direct impact areas at a 2:1 ratio. Trapping surveys, if approved by the USFWS and the California Department of Fish and Game, can be used to determine where salt marsh harvest mice and salt marsh wandering shrews are present otherwise presence must be assumed in the pickleweed-dominated locations. These species will not be impacted by proposed development in Area 3.
- Impacts to sensitive habitats and species from recreational disturbance in Area 4 will be mitigated by designing the golf course to minimize disturbance and installing educational/interpretive signage. No such impacts will occur in Area 3.
- Indirect impacts on waterbird use of preserved perennial wetlands in the former Pintail Duck Club in Area 4 will be mitigated by creating or enhancing wetlands on-site at a 0.5:1 ratio. No such impacts will occur in Area 3.

Without mitigation, this Project would contribute to a number of cumulative impacts to biological resources cumulatively resulting from development projects in the Newark area and elsewhere in the South San Francisco Bay area. The mitigation measures proposed for the Newark Areas 3 and 4 Specific Plan Project will adequately mitigate this Project's contributions to cumulative impacts.

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## PROJECT DESCRIPTION

The Newark Areas 3 and 4 Specific Plan Project (hereafter “Project”) proposes the development of a golf course, residential areas, a school, a park, and related infrastructure on two planning areas in the City of Newark, Alameda County, California (Figure 1). To guide future development, the City initiated a comprehensive revision to its General Plan in the mid-1980s. After a long planning process the City Council adopted the General Plan Update in 1992 designating these planning sites as Specific Plan Areas 3 and 4. Area 3 is bounded by Cherry Street to the north, Stevenson Boulevard to the east, the Southern Pacific Railroad tracks to the south, and Mowry Avenue to the west. Area 4 is located immediately to the southwest of Area 3, and is bounded by Mowry Avenue and Alameda County Flood Control and Water Conservation District (ACFCWCD) Line B to the northwest, the Southern Pacific railroad tracks to the northeast, Mowry Slough to the west and southwest, and ACFCWCD Line N to the southeast.

The City’s General Plan identifies potential development within Area 3 as research and development and within Area 4 as an 18-hole golf course, low-density residential, and open space to be refined by a Specific Plan. The City of Newark has initiated several efforts to document biological resources and habitat quality on the Project site, in Area 4 in particular, to guide development according to the General Plan. In 2002, H. T. Harvey & Associates (2002c) prepared a habitat map and assessed the relative biological quality of various portions of the site on the basis of the locations of wetlands, level of disturbance, and importance to special-status species. This habitat quality map was updated in 2006 (H. T. Harvey & Associates 2006a). At the request of Sobrato Development Companies, H. T. Harvey & Associates delineated wetlands on the site during the period 2006-2007, and U.S. Army Corps of Engineers (USACE) verification of the jurisdictional boundaries of Waters of the U.S. was obtained in 2007 to further guide development planning in Area 4. The intent of the Project considered in the Draft Environmental Impact Report (DEIR) is to develop Areas 3 and 4 in accordance with the City’s General Plan while attempting to avoid and minimize impacts to sensitive biological resources, particularly wetlands, to the maximum extent practicable. The Project elements for Area 3 and 4 will be phased, with residential development in Area 3 occurring before the development of Area 4. Development within Area 4 is conceptual at this time, and may include a golf course, single-family detached houses, and neighborhood parks. Areas inside and outside the development envelope in Area 4 could be utilized for wetland preservation, wetland creation/enhancement or remain unchanged (continued agricultural operation). Despite the conceptual nature of development in Area 4, this Biological Resources Technical Report contains a project-level analysis of potential impacts that may occur, and additional CEQA review is not expected to be needed for development to occur.

Area 3 includes both developed properties and undeveloped (vacant) land. As discussed previously, the existing developed land uses on Area 3 include the City’s George M. Silliman Recreation Complex, City of Newark Fire Station No. 3, Ohlone College Campus, and light industrial/commercial buildings. All of these existing uses will be included in the proposed Specific Plan. A residential development is proposed west of Cherry Street and north of

Stevenson Boulevard (Figure 2). The Specific Plan proposes a range of residential densities, including various sizes of single family detached lot and multi-family attached residential units.

Up to 189 multi-family units are proposed which are anticipated to be below market rate (BMR) senior housing units. An up to 600-student capacity elementary school site is also proposed within the 77-acre planned residential area along Cherry Street. The school will have vehicle access off of Cherry Street. Park uses will also be located within the 77-acre area.

Two vehicle entrances are planned to access the residential area and school, one off Cherry Street (where a curb cut currently exists), and one off Stevenson Boulevard, approximately midway between Cherry Street and the existing industrial uses (also where an existing curb cut exists). By using these two entrances to the Area 3, the existing 50-foot wide landscaped frontage along Cherry Street and the 30-foot wide landscaped frontage along Stevenson Blvd will remain intact. The driveway located off Cherry Street will include installation for a new signal and will have two outbound lanes with a minimum eastbound left-turn storage of 100 feet (four vehicles). The installation of a new signal at the Cherry Street access to Area 3 will also provide a crosswalk at the intersection.

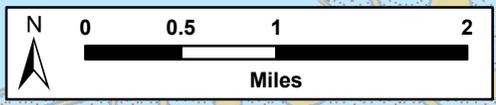
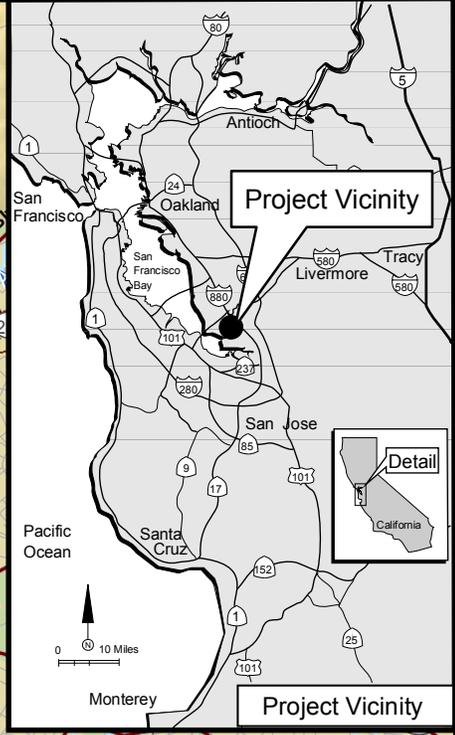
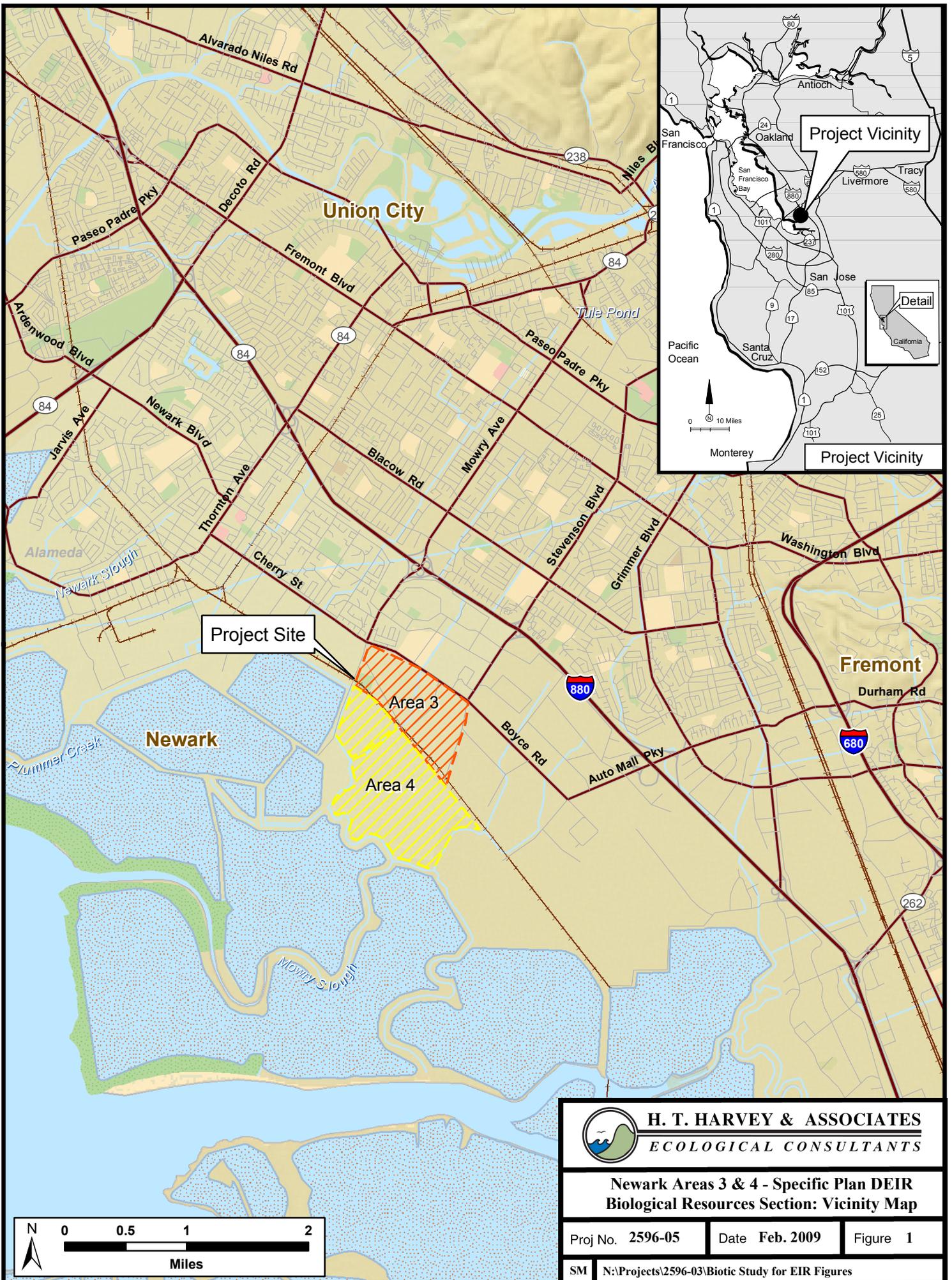
A paved trail is planned adjacent to the ACFCWCD property on the south side of the flood control channel (Line D). This trail will connect to a proposed pedestrian bridge that will cross over the ACFCWCD channel and provide pedestrian access to Ohlone Community College and the George M. Silliman Recreation Complex.

Area 4 is designated by the City of Newark General Plan as *Low Density Residential*, with a requirement for preparation of a Specific Plan to guide development on Area 4, due to the complex conditions in this area including access, ownership, and environmental constraints.

Planning for the development in Area 4 has been undertaken with the intent of avoiding and minimizing impacts to wetlands to the maximum extent practicable. The Specific Plan development envelope in Area 4 includes up to 305 acres of potential development (Figure 2). Development within the envelope may include a golf course, single-family detached houses, and neighborhood parks. No residential uses, only golf course, or other recreational land uses are proposed in the area north of ACFCWCD Line D. Detailed and precise development in Area 4 with respect to the exact location and configuration of residential lots and golf course and, consequently, the extent of wetlands avoided/impacted by the development and the configuration of the remaining agricultural areas will be determined at the time of subdivision map approval. As mentioned above, residential, golf course or neighborhood park use development will only occur within the development envelope, as shown in Figure 2, up to a maximum of 1260 residential units.

Depending on detailed development plans, implementation of the Specific Plan may result in filling (impacting) wetlands within the central residential/golf course plan area and southern residential plan area. This EIR will evaluate the full range of impacted/filled wetlands.

In addition, the Specific Plan includes a public street extension of Stevenson Boulevard with a structural overpass over the Union Pacific railroad tracks to provide vehicular and pedestrian

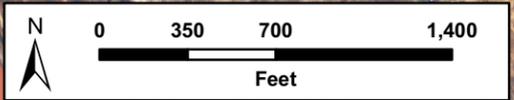


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<b>Newark Areas 3 &amp; 4 - Specific Plan DEIR          Biological Resources Section: Vicinity Map</b>		
Proj No. 2596-05	Date Feb. 2009	Figure 1
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**Legend**

- Area 3 Boundary
- Area 4 Boundary
- Potential Development Envelope



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**Newark Areas 3 & 4 - Specific Plan DEIR Biological Resources Section: Potential Development Envelope**

Proj No. 2596-05    Date Feb. 2009    Figure 2

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access to the Area 4 development. The proposed flyover will require modifications to PG&E power lines to provide the necessary clearance for power lines over the new bridge, and at least one tower supporting these electrical lines, located southeast of the proposed bridge, will be relocated. Mowry Avenue will remain open to provide for Emergency Vehicle Access (EVA) into Area 4.

The Areas 3 and 4 Specific Plan proposes an 18-hole golf course in Area 4. The golf course would be located generally west of the Union Pacific railroad tracks and south of Mowry Avenue and could extend along the west side of the railroad tracks both north and south of ACFCWCD Line D (Figure 2). Access across the channel could be provided by the EVA roadway, which could also serve as a cart path bridge for the golf course.

Upon entry into the golf course area, there would be up to a 200-space parking lot, clubhouse, and driving range. The project proposes a 10,000 to 20,000 square foot golf course clubhouse, which will provide capacity for 150 to 220 people. The clubhouse restaurant and banquet facilities will provide seating for 100 to 144 persons, for golf tournament banquets and other events such as parties and wedding receptions.

The golf course would be open for play to the public seven days per week from sunrise to sundown. The golf course could include a driving range, which would be oriented so that golf balls will be hit away from entry roads and wetland areas. Poles and nets would also surround the driving range to limit errant balls.

A golf course maintenance area would be provided, which would include supplies, mowers and other equipment for maintaining the golf course. The maintenance building will require hazardous materials permits for oil and fuel storage and possibly chemical storage. The future operators or building contractors will prepare for and apply for those permits.

The maintenance areas could include onsite diesel and gasoline tanks. The diesel tank is expected to be 1,000 to 1,500 gallon capacity and the gas tank is expected to be 500 gallon capacity. Both tanks would be above ground in double lined tanks with sufficient bollards, break away nozzles, and proper signage. The diesel and gasoline will be used for the mowers, hand tools, maintenance carts, and other equipment. The golf course will maintain a fleet of 40 to 60 electric-powered golf carts that will be recharged on site with individual small trickle chargers. There are two options for golf cart storage, an independent outbuilding near the clubhouse, or underneath the clubhouse.

The proposed lighting for the golf course would include entrance lighting, lighting in the parking lot, lighting in and around the clubhouse area, and, if necessary, driving range lighting. The driving range could be lit for evening driving range practice. The lighting would consist of above ground lights at the tees and ground lighting out on the driving range itself. The project does not include tall poles with lights for illumination of the driving range.

The golf course will include a computerized irrigation system connected to an on-site weather station that would limit watering to the exact needs of the course. The irrigation systems will be managed with a central computer and wireless devices capable of individual head control and

pump station monitoring and operation. High-tech weather stations will monitor all site conditions and shut down the pump station in a rain event. The sprinkler head designs ensure a very even distribution of water, reducing runoff and station run times. The proposed golf course includes unmaintained native grasses in the outer roughs that require very little water and infrequent mowing. The sprinkler head location and precision will allow the golf course operator to define a hard edge for irrigated and non- irrigated areas.

The golf course will apply fertilizer to the maintained areas including the fairways, greens, and tees. Fertilizer is measured in pounds of nitrogen per 1,000 square feet and soil tests dictate the demand. Fairways typically require about two to three pounds fertilizer (nitrogen) annually. Greens and tees require approximately one pound per month during the growing season, so six to eight pounds annually. The tees will have a thinner profile of sand but will need a lot of re-growth for divot repair. For comparison, turf athletic fields typically use up to 10 pounds of fertilizer annually.

The proposed golf course will adopt the Audubon International Program for golf courses. The program will be involved from the design phase through the development and into the operations to ensure that the managers apply sustainable resource management practices in the long-term stewardship of the property. The proposed golf course design will follow Audubon International's very specific mandates for environmental responsibility throughout the development of the project. Based on a site specific report provided by Audubon International (and in conformance with the mitigation measures described in this Biological Technical Report), a plan will be developed for the proposed golf course. By implementing and documenting environmental management practices, the golf course would be eligible for designation as a Certified Audubon Cooperative Sanctuary. These practices include developing environmental planning goals; managing non-play areas for wildlife as feasible; outreach and education to golfers regarding minimization of impacts (e.g., strict prohibition of entry into out-of-bounds areas); development of a pest management program to limit chemical use; water conservation measures through the use of efficient irrigation and appropriate turfgrass selection; and implementation of effective runoff water quality measures.

Area 4 and portions of Area 3 will require fill to be imported onto the residential areas, to raise them out of the designated 100-year floodplain. The fill for Areas 3 and 4 is assumed to come from soil excavated from local major construction projects. The Specific Plan proposes to grade Area 3 so that the development areas will match existing drainage patterns and release locations on the property. The residential pads will be elevated in accordance with City code requirements which stipulate that all residential pads must be above a minimum elevation of 11.25 feet and all finish floor elevations must be a minimum of 6-inches above the pads, where applicable across the site. The existing dual 42-inch outfall into the ACFC&WCD channel at the northwest corner of the development will be used to discharge stormwater from Area 3. The proposed Area 3 grading will require approximately 56,000 cubic yards of fill. Proposed elevations will range from approximately 11 to 19 feet above mean sea level. The maximum cut depth will be approximately two feet and the maximum fill depth will be approximately 3.5 feet.

Area 4 grading will require up to approximately 1,610,000 cubic yards of fill. Proposed elevations for all residential development will range from approximately 10 to 14.5 feet above

mean sea level. The maximum cut depth will be approximately one foot and the maximum fill depth will range from 14 to 15.5 feet. The proposed golf course elevations will remain between one and 16 feet above mean sea level. As mentioned above, it is assumed that the fill source would come from soil excavated from local major construction projects and trucked to the site via Stevenson Boulevard; however, that does not limit the possibility that the some fill could be moved from higher elevated areas within the development envelope to lower elevation areas that require fill.

The proposed development in Area 3 will be drained by way of new underground storm drain lines to the existing outfall to ACFCWCD Line D, located at the northwest corner of the 77-acre property. This outfall was permitted with two 42-inch connections sized for the original industrial zoning designation. Due to the nature of proposed development containing significant open space and pervious areas, the anticipated stormwater runoff volume of Area 3 will be less than the previously anticipated industrial development's stormwater runoff. Therefore, the existing outfall would be more than adequate to serve the entire area's drainage needs. Should the volume of runoff for Area 3 be determined to be greater than the capacity of the existing outfall, various methods of water detention can be implemented to reduce the runoff to the pre-development outfall capacity. Due to the proposed grading concepts, it is not anticipated that Area 3 will need a storm drain pump.

All residential development within Area 4 will drain via new underground storm drain lines to various points along the perimeter of the development envelope where outfalls will be constructed to discharge to the adjacent non-developed open space. The golf course will also be designed to drain via underground mains to various points along the course including possible on-site water features. The residential development in Area 4 will be elevated between 10 to 14 feet above mean sea level, creating significant grade differential for gravity systems. Stormwater drainage and treatment elements are being developed so as to allow runoff to continue to be distributed into and among the wetlands that will not be filled (i.e., to maintain adequate wetland hydrology) and to ensure that water quality within these wetlands is maintained. Runoff from the portion of Area 4 southeast of ACFCWCD Line D will continue to flow to the pump located near the confluence of ACFCWCD Line N and Mowry Slough, where it will be pumped into Mowry Slough as currently occurs. Most of the golf course (the area north of ACFCWCD Line D) is already elevated above sea level; therefore, it is not anticipated that this portion of Area 4 will need a storm drain pump. Runoff from this portion of Area 4 will continue to flow a one-way outlet culvert into Line B near its confluence with Line D.

## ENVIRONMENTAL SETTING

### GENERAL PROJECT AREA DESCRIPTION

The approximately 889-acre (ac) Project site is located in the City of Newark in Alameda County, California (Figure 1). The site is comprised of the 314-ac area known as Newark Specific Plan Area 3 and the 575-ac area known as Newark Specific Plan Area 4. Area 3 extends from the railroad tracks northeast to Cherry Avenue, and from Stevenson Boulevard northwest to Mowry Avenue (Figure 1). It includes existing facilities such as the Silliman Recreation Complex, a fire station, Ohlone College, campus industrial park, and agricultural fields. Land uses adjacent to Area 3 include residential development and Newark Memorial High School to the northeast, industrial development to the northwest, and industrial development and the Pacific Commons wetland and vernal pool tadpole shrimp (*Lepidurus packardii*) mitigation site to the southeast. The Project includes proposed activities only in the northeastern corner of Area 3, and thus activities in the remainder of Area 3 are not considered in this report.

Area 4 is located southwest of the Southern Pacific Railroad tracks, southeast of Mowry Avenue, east/northeast of Mowry Slough and ACFCWCD Line B, and northwest of ACFCWCD Line N and the Tri-Cities Landfill. Three ACFCWCD channels are located within or adjacent to the Project site: ACFCWCD Line D runs through the center of Areas 3 and 4, ACFCWCD Line B runs along the western boundary of Area 4 (eventually becoming Mowry Slough), and ACFCWCD Line N runs along the southeastern boundary of Area 4 (Figure 1). Area 4 is mostly undeveloped, consisting primarily of cultivated fields. A large wetland complex is located in the west-central part of Area 4. Auto-wrecking yards, a private residence, and associated farm outbuildings constitute existing facilities within Area 4. Land uses immediately surrounding Area 4 include salt production in Cargill's active salt pond evaporators to the northwest, a former test track for Peterbilt trucks and lands owned by the ACFCWCD across Mowry Slough from (west of) Area 4, active salt ponds M7 and M6 to the south, the Tri-Cities Landfill to the southeast, and the Pacific Commons vernal pool mitigation site to the northeast (Figure 1).

The Project area overlaps the Newark, Niles, Mountain View, and Milpitas U.S. Geological Survey (USGS) 7.5-minute quadrangle maps. In general the Project site slopes from northeast to southwest and spans an elevation range of approximately 21 ft. The highest elevation is 19.2 ft (National Geodetic Vertical Datum, NGVD) located along the northeastern boundary of the parcel in Area 3 adjacent to Cherry Street. The lowest elevation occurs along the extreme southwestern part of Area 4 and is at -1.8 ft NGVD. The average annual precipitation in this area is 16 inches, and the average annual temperature is 57° Fahrenheit (Soil Conservation Service [SCS] 1975). The site is fairly mesic, and especially in portions of Area 4 closer to San Francisco Bay, wetland hydrology is influenced by high groundwater tables and muted tidal fluctuation as well as runoff from precipitation. As such, wetlands on the site range from fresh to brackish to strongly saline-alkaline. The National Wetland Inventory (NWI 1985) depicts nine wetland types on the Project site: 1) palustrine emergent diked/impounded temporarily flooded; 2) palustrine emergent diked/impounded seasonally flooded; 3) palustrine emergent

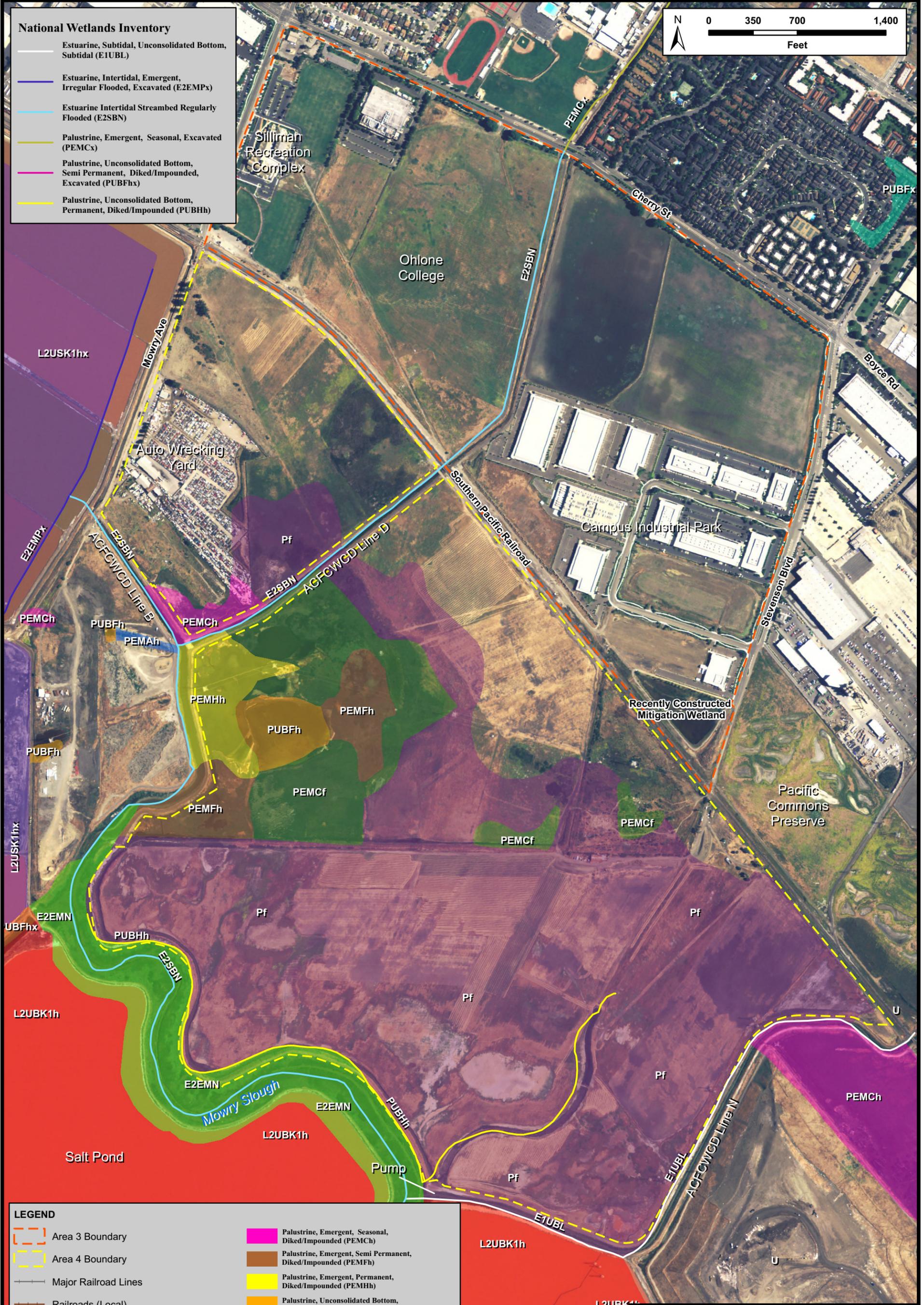
diked/impounded semi-permanently flooded; 4) palustrine emergent diked/impounded permanently flooded; 5), palustrine unconsolidated bottom diked/impounded semi-permanently flooded; 6) palustrine unconsolidated bottom diked/impounded permanently flooded; 7) estuarine subtidal unconsolidated bottom; 8) estuarine intertidal streambed regularly flooded; and 9) palustrine farmed (Figure 3). A mitigation wetland not shown on the NWI map, located within Area 3 northwest of the Stevenson Boulevard crossing of the Southern Pacific Railroad tracks, was constructed in the 1990s (Figure 3).

The majority of Area 4, and the portion of Area 3 where residential construction is proposed, is in active agricultural use, with much of the land regularly disked and graded. Historically, land uses in Area 4 were quite different from the site's current conditions. Most of Area 4 supported extensive coastal salt marshes, but the installation of levees, placement of fill, construction of numerous drainage channels as part of agricultural production, and the construction of salt ponds in the early 1900s immediately to the west of the site has removed or muted tidal influence. Most notably, the construction of the outboard levee that separates the site from Mowry Slough prior to salt production in the late 1800s has allowed the area to be actively farmed for decades. These levees were replaced approximately 4 years ago (P. Boursier, pers. obs.).

Two duck clubs formerly operated in Area 4: the Pintail Duck Club in the west-central portion where a large marsh currently exists and the Whistling Wings Duck Club in the southwestern portion south of the agricultural road (Figure 2). The land in these areas was recontoured and intricate pumping systems were installed to create duck clubs and provide suitable wetland conditions for ducks. In addition, portions of these areas were farmed to attract ducks to the area. After the duck clubs were abandoned in the 1970s and early 1980s, farming was the primary use of the land. Portions of the existing salt/brackish marsh where the Pintail Duck Club was formerly located were disked in some years, based on a review of aerial photos, but wetter areas reverted to marsh and could not be farmed. In contrast, in the vicinity of the Whistling Wings Duck Club in the southwestern part of Area 4, drainage improvements were made after the duck club was closed, including the excavation of additional drainage ditches on the site, and a pump was installed to drain the site further by pumping water from Area 4 into Mowry Slough. As a result, most of the southern portion of Area 4 consisted of slough channels on the map of historic tidal sloughs created using data provided by the San Francisco Estuary Institute (Rodgers and Kerr 1857); the majority of the site has been actively drained for at least 30 years for farming practices. Depending on the yearly precipitation and inputs from groundwater, some areas of the site may not be farmed until late in the season, if at all. Aerial photographs have shown that disking and planting occur to greater extents in dry years than in wet years, and in some areas planting and the subsequent harvest may be delayed until late summer in wet years.

Portions of Area 4 southeast of ACFCWCD Line D drain generally to the south/southeast through ditches that have been constructed on the site, including a large ditch that surrounds the southwestern portion of the site, to a large pump (Figure 1) which continually pumps water from the site into Mowry Slough. Portions of Area 4 northwest of ACFCWCD Line D drain south/southwestward to a one-way outlet culvert on Line B near its confluence with Line D. This culvert allows water to drain from the site but does not allow water from Line B to enter the

- National Wetlands Inventory**
- Estuarine, Subtidal, Unconsolidated Bottom, Subtidal (E1UBL)
  - Estuarine, Intertidal, Emergent, Irregular Flooded, Excavated (E2EMPx)
  - Estuarine Intertidal Streambed Regularly Flooded (E2SBN)
  - Palustrine, Emergent, Seasonal, Excavated (PEMCx)
  - Palustrine, Unconsolidated Bottom, Semi Permanent, Diked/Impounded, Excavated (PUBFhx)
  - Palustrine, Unconsolidated Bottom, Permanent, Diked/Impounded (PUBHh)



- LEGEND**
- Area 3 Boundary
  - Area 4 Boundary
  - Major Railroad Lines
  - Railroads (Local)
- National Wetlands Inventory**
- Estuarine, Intertidal, Emergent, Regular (E2EMN)
  - Lacustrine, Littoral, Unconsolidated Bottom, Artificially flooded, Diked/Impounded (L2UBK1h)
  - Palustrine, Emergent, Temporary, Diked/Impounded (PEMAh)
  - Palustrine, Emergent, Seasonal, Farmed (PEMCf)
  - Palustrine, Emergent, Seasonal, Diked/Impounded (PEMCh)
  - Palustrine, Emergent, Semi Permanent, Diked/Impounded (PEMFh)
  - Palustrine, Emergent, Permanent, Diked/Impounded (PEMHh)
  - Palustrine, Unconsolidated Bottom, Semi Permanent, Diked/Impounded (PUBFh)
  - Palustrine, Unconsolidated Bottom, Semi Permanent, Excavated (PUBFx)
  - Palustrine, Unconsolidated Bottom, Permanent, Excavated (PUBHh)
  - Palustrine, Farmed (Pf)
  - Lacustrine, Littoral, Unconsolidated Shore, Artificially flooded, Hyperhaline, Diked/Impounded, Excavated (L2USK1hx)

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Newark Areas 3 & 4 - Specific Plan DEIR Biological Resources Section: Aerial Photograph and NWI Map

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site. Lines D and N receive no runoff from Area 4. The portion of Area 3 where development is proposed as part of this Project drains westward to Line D.

There are three primary sources of hydrology acting on the site, including incidental rainfall, groundwater table fed by springs, and lateral seeps. Groundwater does not appear to influence all areas of the Project site. Rather, the localized groundwater occurring within several perennial wetlands/ponds located in the western portion of Area 4 allows water in the top several inches of the soil to move laterally away from the ponds into the adjacent agricultural fields. The source for the groundwater appears to be a large aquifer that is recharged far upslope by the Fremont Percolation Ponds (which contribute to the Niles Cone Groundwater Basin which includes three aquifers: the deep aquifer, the Fremont aquifer, and the Newark aquifer). Recharge of the seasonal wetland and marsh habitats near the Pintail Duck Club from groundwater seeps occurs in mid-to late-summer. Evidence of this recharge from groundwater seeps includes bubbling water and the presence of a greater extent of surface water and hydrophytic vegetation in areas near the former Pintail Duck Club during the late summer months as compared to water levels in the early spring or summer, as observed in the summers of 2006, 2007, and 2008. Other areas of the Project site are mainly influenced by surface precipitation flowing to slight depressions, including the areas within Area 4 proposed for residential development. Lastly, the presence of surface and subsurface water deriving from underground seeps appears to influence seasonal wetland habitat within Area 4 east and south of the proposed golf course. The remaining areas on the site are influenced by a combination of these hydrologic features. The Project area is relatively flat, with little elevation change across large portions of the property. Small gradients in elevation (less than 1 ft difference between upland areas and potential wetland areas) at this site result in subtle depressions. The landscape surrounding these slight depressions then becomes the contributing watershed to these potential wetlands. However, subsurface flow within disked soils also allows water to move generally towards the pump mentioned previously, draining the site slowly.

Due to historic coastal influence, soils in the area are typically fine-textured to clayey. Soils from 10 series underlie the Project site, most of which were either previously drained, ponded, or currently contain water. These include: Clear Lake clay drained (0 to 2% slopes, 1% of the Project site), Marvin silt loam saline-alkali (0.6% of the Project area), Omni silty clay loam drained (6.6% of the Project site), Omni silty clay loam strongly saline (61.9% of the Project site), Pescadero clay ponded (0.1% of the Project site), Reyes clay (1.1% of the Project site), Reyes clay ponded (less than 1% of the Project site), Reyes clay drained (17.8% of the Project site), Willows clay drained (1.6% of the Project site), and Xerothents clayey (7.3% of the Project site). These soils are poorly drained and formed in alluvium with the exception of the Xerothents, which consist of various materials deposited for fill (SCS 1975). All soil types above are considered hydric except for the Xerothents fill soils and Willows clay drained (although depressional inclusions within Willows clay drained are hydric) (SCS 1992). During our wetland delineation field surveys, we observed soils on the site to be compacted from years of agricultural use, resulting in a relatively less dense plow layer on top of a compacted layer of clay. We also observed scalded areas (that appear as white areas on the aerial photograph) that contained high concentrations of dissolved salts (electrical conductivity [EC] 14-20 deciSiemens per meter [dSm-1] for the majority of the site, although some areas were hypersaline [EC greater than 55 dS m-1]) (Marschner 1999) and high soil pH (ranging from 8-11 on the site). We also

observed numerous soil lenses from the placement of historical fill material and presence of historical tidal slough soils and inverted soils from deep ripping of the site. Vegetation within the agricultural fields appears to be mowed and harvested annually, or sprayed, reducing the organic matter input severely and leading to an overall reduction in microorganisms or invertebrates present in the soil (Killham 1994).

While the City of Newark General Plan has identified development that is projected to occur within Area 4, this area has also been identified for its ecological value by regional planning efforts. The southern and western portions of Area 4 were included in the approved 1990 Refuge Boundary Expansion area of the Don Edwards San Francisco Bay National Wildlife Refuge (SFBNWR), indicating that these lands were pre-approved for addition to the Refuge in the future. The Baylands Habitat Goals Project (1999) includes recommendations to “protect and enhance the tidal marsh/upland transition at the upper end of Mowry Slough and in the area of the [former] Pintail Duck Club.” Being situated between existing salt production ponds that were formerly tidal wetlands and vernal pool habitat east of the site, Area 4 provides one of few areas in the South Bay with upland habitat transitioning between tidal wetlands and vernal pools, and the Goals Project identified the site’s potential value in providing upland transition zones adjacent to tidal wetlands.

## **BIOTIC SURVEYS**

Surveys conducted for this impact assessment included all of Areas 3 and 4, though the majority of survey effort in Area 3 was focused on the portion that would be developed as part of this Project. Specifically, we conducted surveys to: 1) assess existing biotic habitats, 2) assess the site for its potential to support special-status species and their habitats, and 3) identify potential jurisdictional habitats, including jurisdictional Waters of the U.S., riparian habitat, and ordinance trees. Prior to commencing site visits, and periodically thereafter to check for updated records, the California Natural Diversity Database ([CNDDDB] 2008) was queried for information on the local distribution of special-status species. We also consulted USGS 7.5-minute quadrangle topographic maps and aerial photographs of the area prior to site visits to locate habitat features on or near the site that could potentially support special-status wildlife species. The wetland delineation team further consulted a map of historic tidal sloughs created using data provided by the San Francisco Estuary Institute (Rodgers and Kerr 1857) as well as historic aerial photographs to determine previous land uses and extent of historic sloughs and marsh habitat.

H. T. Harvey & Associates’ biologists have conducted wildlife, rare plant, and wetland surveys on the Project site since the mid-1980s. These include reconnaissance-level surveys to determine biological constraints and opportunities and to map habitat types present within the site, surveys conducted to delineate wetland habitat present on the site, and focused rare plant surveys and wildlife surveys. Our survey efforts on Areas 3 and 4 are described below.

### **Reconnaissance-level Surveys**

A number of reconnaissance-level field surveys were conducted at the Project site or on portions of the Project site to identify the potential biotic constraints that may need to be addressed during project planning, California Environmental Quality Act (CEQA) review, permitting, and

implementation.. H. T. Harvey & Associates performed general habitat mapping in Area 4 on 4 and 10 April and 10 May 2001 for the City's *Newark Specific Plan Area 4 Biotic Constraints and Opportunities Analysis* (H. T. Harvey & Associates 2002c). For the current report, additional surveys were conducted on 10 December 2005 and then on a number of occasions during all seasons in 2006, 2007, and 2008 to update the previous habitat mapping and habitat quality assessment for Area 4 and to assess biotic constraints and opportunities for Area 3 (H. T. Harvey & Associates 2006a). These surveys were conducted by plant/wetlands ecologists and wildlife ecologists to characterize existing biological conditions, look for special-status species at the reconnaissance level, and assess the suitability of habitat on Areas 3 and 4 for special-status species.

### **Surveys Conducted for the Delineation of Wetland Habitat**

In November of 2005, we commenced long-term intensive site monitoring for wetlands, particularly in Area 4 and in the undeveloped portions of Area 3. These surveys were conducted to provide detailed hydrologic observational data for the formal wetland delineation in the spring of 2007 to identify potential jurisdictional Waters of the U.S./State. A wetland delineation team surveyed the Project site during the 2005-2006 and 2006-2007 winter/spring wet seasons. H. T. Harvey & Associates' plant ecologists/wetland specialists A. Breen, Ph.D., K. Hardwicke, Ph.D., M. Bacca, M.S., L. Infante, M.S., E. Kentner, Ph.D., and B. Cleary, M.S. and senior plant ecologist P. Boursier, Ph.D., visited the site no fewer than 50 times from November 2005 to June 2007. We also used these surveys to provide additional information used for habitat classification and mapping on the site, habitat quality assessments, and special-status plant surveys. Surveys to collect soil, vegetation, and hydrology data for the formal wetland delineation were conducted on numerous dates within November and December 2006 and January through June 2007. Site photographs documenting hydrologic conditions were taken on the following dates: 17 November and 7, 12, and 19 December 2006; on 3, 4, 9, 17, and 18 January 2007; 6, 13, and 23 February 2007; 5, 6, 13, 20, and 27 March 2007; 3, 19, 20, and 24 April 2007; 1,2, and 30 May 2007; and 6 June 2007.

### **Rare Plant Surveys**

In addition to the 50+ site visits observing wetland vegetation on the site, plant ecologists A. Breen, Ph.D. and K. Hardwicke, Ph.D. conducted targeted, protocol-level surveys for spring-blooming special status plant species on 27 March and 3 April 2007 and for late-blooming special-status plant species on 26 and 27 July 2007. These surveys covered all suitable habitats for potentially occurring special-status plants on the site. All observed plant species were identified using Hickman (1993).

### **Focused Wildlife Surveys**

Focused surveys for certain special-status wildlife species have been conducted on portions of the Project site since the 1980s. The special-status wildlife species for which focused surveys have been conducted include vernal pool tadpole shrimp, California tiger salamander (*Ambystoma californiens*), burrowing owl (*Athene cunicularia*), and salt marsh harvest mouse (*Reithrodontomys raviventris*). Other special-status wildlife species were looked for on a reconnaissance level during these focused surveys.

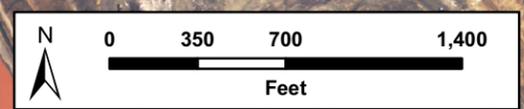
**Vernal Pool Tadpole Shrimp.** Habitat assessments for vernal pool tadpole shrimp were conducted by R. White, Ph.D. in the area that has now been developed for the campus industrial park (Figure 4) in February and March 1998 (H. T. Harvey & Associates 1998). The area surveyed was defined by Stevenson Boulevard on the east, ACFCWCD Line D to the west, the Southern Pacific railroad tracks to the southwest and Eureka Drive to the north. In February 2006, a habitat assessment for vernal pool tadpole shrimp was conducted by R. Arnold, Ph.D. (2006) on the “O’Connor parcel”, the ruderal herbaceous field/coastal scrub/seasonal wetland complex southwest of the Southern Pacific railroad tracks and north of the farm buildings in Area 4. Helm Biological Consulting conducted wet-season surveys according to the U.S. Fish and Wildlife Service (USFWS) protocol (USFWS 1996) for large branchiopods in all suitable habitat on Areas 3 and 4 in 2006-2007 and 2007-2008 (Helm Biological Consulting 2008) and conducted dry-season surveys according to the USFWS protocol in 2008.

**California Tiger Salamander.** Habitat assessments for potential upland and aquatic breeding habitat for California tiger salamanders have been conducted on portions of the current Project site. Reconnaissance-level surveys were conducted by M. Jennings, Ph.D. in the area that has now been developed for the campus industrial park (Figure 4) in February and March 1998 (H. T. Harvey & Associates 1998). The area surveyed was defined by Stevenson Boulevard on the east, the Alameda County Flood Control Channel Line D to the west, the Southern Pacific railroad tracks to the southwest and Eureka Drive to the north. A habitat assessment was conducted by J. Wilkinson, Ph.D. on the O’Connor parcel in February 2006 (H. T. Harvey & Associates 2006b). Current survey efforts for this document included an additional habitat assessment conducted by J. Wilkinson, Ph.D. for the both of these portions of the Project site in August 2006. Larval surveys were conducted according to the USFWS/California Department of Fish and Game (CDFG) protocol (2003) in all potentially suitable breeding habitat on Areas 3 and 4 in March, April, and May 2007 by Biosearch Associates (2007) and in March, April, and May 2008 by G. Dayton, Ph.D. and S. Carpenter, B.S.

**Burrowing Owls.** H. T. Harvey & Associates’ wildlife ecologists, including S. Rottenborn, Ph.D., S. Terrill, Ph.D., and others have conducted a number of burrowing owl surveys on various parcels of Areas 3 from 1998 to 2005. In 1998, the majority of Area 3 was intensively cultivated, and burrowing owl surveys focused on areas around the perimeter of these fields that supported California ground squirrel (*Spermophilus beecheyi*) burrows. As portions of Area 3 became developed in the late 1990s and early 2000s, we conducted a number of initial and protocol-level surveys to provide information for specific developments within Area 3, including the Silliman Recreation Complex (H. T. Harvey & Associates 2002a, 2002b), the Newark Fire Station No. 3 (H. T. Harvey & Associates 2003) and several of the buildings in the campus industrial park in the southeastern part of Area 3 (H. T. Harvey & Associates 2000, 2001b, 2005a, 2005b). Area 4 was surveyed for burrowing owls in April and May 2001 as part of the biotic constraints and opportunities analysis (H. T. Harvey & Associates 2001a). Current survey efforts for this document include protocol-level surveys conducted throughout Areas 3 and 4 in July 2007, and incidental observations of owls on the site were made in 2008.



Legend	
	Project Boundary
	Area 3 Boundary
	Area 4 Boundary
	Upland Agricultural (270.37 ac)
	Agricultural Field / Seasonal Wetland - Saline to Brackish (186.70 ac)
	Agricultural Field / Seasonal Wetland - Brackish to Fresh (15.44 ac)
	Ruderal Herbaceous Field (134.52 ac)
	Developed (194.29 ac)
	Aquatic (36.97 ac)
	Diked Salt Marsh (29.12 ac)
	Muted Tidal Salt Marsh (6.59 ac)
	Freshwater Marsh (4.27 ac)
	Brackish Marsh (3.13 ac)
	Seasonal Wetland (4.09 ac)
	Coastal Scrub (2.18 ac)
	Wrecking Yard Detention Basins (1.24 ac)



**H. T. HARVEY & ASSOCIATES**  
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**Newark Areas 3 & 4 - Specific Plan DEIR Biological Resources Section: Habitat Map**

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**Salt Marsh Harvest Mouse.** H. Shellhammer, Ph.D., an associate ecologist with H. T. Harvey & Associates, performed trapping for salt marsh harvest mice within the diked salt marsh in the old Pintail Duck Club on Area 4 for the CDFG on 11 and 12 June 1985 (Shellhammer et al. 1985). Additional surveys to assess the suitability of habitat for salt marsh harvest mice were conducted by H. Shellhammer, Ph.D. for a power transmission line project on 11 and 12 August 1997 where the transmission towers were on or immediately adjacent to the southeast corner of Area 4 (H. T. Harvey and Associates 1997). Current survey efforts for the document included a reconnaissance-level habitat assessment for this species conducted by H. Shellhammer, Ph.D. in 2007.

## **BIOTIC HABITATS**

Plant communities were described in terms of their dominant tree, shrub, and herbaceous vegetation composition, as well as their hydrology and extent of tidal influence. Where appropriate, the communities have been named according to Holland's system of classification (1986) as modified by Sawyer and Keeler-Wolf (1995). Additionally, we consulted the CDFG *List of California Terrestrial Natural Communities* (CDFG 2003, 2007) to check for habitats and vegetation alliances considered rare or sensitive by CDFG. Information was gathered for the auto wrecking yard area by the landowners' previous wetland consultant (Wetland Research Associates) and was used in describing and mapping those areas (U.S. Army Corps of Engineers [USACE] File# 2006-400075S). Habitat zones within Area 3 and 4 are shown and lettered for reference in Figure 4.

Thirteen biotic habitats were identified in Areas 3 and 4 (Figure 4). These include upland agricultural, agricultural field/seasonal wetland (saline to brackish), agricultural field/seasonal wetland (brackish to fresh), ruderal herbaceous field, developed, aquatic, diked salt marsh, muted tidal salt marsh, freshwater marsh, brackish marsh, seasonal wetland, coastal scrub, and wrecking yard detention basins. Area 3 is dominated by developed, ruderal, and upland agricultural habitats. Agricultural fields variously characterized as uplands or seasonal wetlands (saline to brackish and brackish to fresh) comprise the majority of Area 4 (Figure 4). The majority of Area 4, as well as the northeastern portion of Area 3, was in active agricultural production when our surveys were conducted for the preparation of this report. Wetlands that were delineated according to USACE guidance but that are in active cultivation are considered different habitat types from upland (i.e., non-wetland) agricultural fields, even though they look and function similarly during much of the dry season. However, large portions of Area 4 are too wet for productive agriculture and support extensive marsh habitat exhibiting various degrees of tidal influence. Table 1 summarizes the extent of each biotic habitat on the site and also lists approximate acreages of each habitat type (for Areas 3 and 4 combined). Characteristics of, and dominant plant and wildlife species observed within, each of these biotic habitats are described below. A complete list of all vascular plant species observed on the Project site during field surveys is provided in Appendix A.

**Table 1. Biotic Habitat/Land Use Acreages in Newark Specific Plan Areas 3 and 4.**

<b>Biotic Habitat/Land Use</b>	<b>Acreage</b>	<b>Percent of Total</b>
<b>All Agricultural Habitats</b>	<b>471.5</b>	<b>53%</b>
Upland Agriculture	269.3	30%
Agricultural Field/Seasonal Wetland (Saline to Brackish)	186.8	21%
Agricultural Field/Seasonal Wetland (Brackish to Fresh)	15.4	2%
<b>Ruderal, Herbaceous Field</b>	<b>134.0</b>	<b>15%</b>
<b>Developed</b>	<b>195.0</b>	<b>22%</b>
<b>Aquatic</b>	<b>38.2</b>	<b>4%</b>
<b>All Marsh Wetlands</b>	<b>42.7</b>	<b>5%</b>
Diked Salt Marsh	29.1	3%
Muted Tidal Salt Marsh	6.6	<1%
Freshwater Marsh	4.4	<1%
Brackish Marsh	2.6	<1%
<b>Seasonal Wetland</b>	<b>4.2</b>	<b>&lt;1%</b>
<b>Wrecking Yard Detention Basins</b>	<b>1.2</b>	<b>&lt;1%</b>
<b>Coastal Scrub</b>	<b>2.2</b>	<b>&lt;1%</b>
<b>Total</b> (all acreages are approximate)	<b>889</b>	<b>100%</b>

### **Upland Agriculture**

**Vegetation.** Approximately 269 ac of the 889-ac site is comprised of upland areas currently in agricultural production. Two large areas immediately southwest of the railroad tracks (Figure 4) and a large mosaic in the central portion of the Project site that is south of the agricultural road exhibited dry soils characteristic of upland areas. The majority of the land within Areas 3 and 4 has been subject to long-term, dryland farming for 20 years, and in some areas outside of the historic duck club complexes south of the agricultural road, for as much as 100 years. This has entailed annual disking and planting; seeding of upland cereal crops such as barley, wheat, and oats; and harvesting for hay production. When the duck clubs were closed in the 1970s and 1980s, dryland farming began in earnest across the majority of Area 4 (outside of the former Pintail Duck Club area which remains perennially wet) and in the majority of Area 3. In fact, up until the time that Legacy Partners purchased the land in 1997 for development of the campus industrial park (Figure 4), farming records detail active cultivation since 1956: from 1956-1981 commodity crops were grown, from the mid-1970s and from 1986 to 1997 hay was grown, and from 1982-1986 gladiola/hay was grown (H. T. Harvey & Associates 1999).

These areas are disked and ripped annually for planting. Various hydrophytes such as birdsfoot trefoil (*Lotus corniculatus*), rabbitsfoot grass (*Polypogon monspeliensis*), and Italian ryegrass (*Lolium multiflorum*) occur only very occasionally in this habitat. Rather, planted oats (*Avena sativa*), wheat (*Triticum aestivum*), and barley (*Hordeum vulgare*) grow well in these areas, and weedy upland mustard species such as black mustard (*Brassica nigra*), shortpod mustard (*Hirschfeldia incana*), and wild radish (*Raphanus sativus*) thrive. Upland agricultural habitats in some areas, particularly in the southern part of Area 4, are less grassy, are scalded by salt accumulation, and support scrubby chenopods such as beet (*Beta vulgaris*), which was not

planted and has likely established as a weed. Formerly, limited areas along the northern and eastern borders of Area 3 supported hydrophytes such as rabbitsfoot grass due to leakage from irrigation systems. However, these leaks were repaired, and the USACE did not claim these features as jurisdictional wetlands. These areas now function as upland agricultural field habitat.

**Wildlife.** The frequent, ongoing nature of disturbance of the upland agricultural habitats on the site limits the development of wildlife habitat and the ability of wildlife to nest and burrow within these areas. Few birds nest in these habitats. Western meadowlarks (*Sturnella neglecta*) and Bryant's savannah sparrows (*Passerculus sandwichensis alaudinus*) may attempt nesting in the grain crops, but spring harvesting occurs before these birds are able to fledge young, and thus most or all such nesting attempts fail. Raptors such as the red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), northern harrier (*Circus cyaneus*), and barn owl (*Tyto alba*) forage over these agricultural habitats, primarily when they contain vegetation. Rodents such as the western harvest mouse (*Reithrodontomys megalotis*) and California vole (*Microtus californicus*) occur commonly in grasses associated with upland agriculture, and black-tailed hares (*Lepus californicus*) and desert cottontails (*Sylvilagus audubonii*) occur in this habitat as well. California ground squirrels dig burrows in and around such areas, and these burrows provide roosting and nesting sites for burrowing owls (*Athene cunicularia*) which are known to occur within the Project area. However, the frequency of disturbance of the upland agricultural fields on the site limits the abundance of burrowing mammals and the stability of ground squirrel colonies. As a result, burrowing owls have not been observed nesting or roosting in burrows within the agricultural fields themselves, instead using adjacent, less frequently disturbed areas. Garter snakes (*Thamnophis* spp.), gopher snakes (*Pituophis melanoleucus*), and western fence lizards (*Sceloporus occidentalis*) are examples of reptiles common to such habitats in the area.

The grain crops grown in these fields are planted in fall, grow through the winter, and are harvested in early spring. Subsequently, the agricultural areas are heavily disked. As a result, these fields are completely devoid of vegetation from mid-spring through the fall, and during these times they provide little habitat value for most wildlife species. As rain moistens the ground and low vegetation grows within these upland fields, American pipits (*Anthus rubescens*) savannah sparrows, and killdeer (*Charadrius vociferus*) feed in these upland fields in small numbers.

#### **Agricultural Field/Seasonal Wetland (Saline to Brackish and Brackish to Fresh)**

**Vegetation.** Many of the agricultural portions of Area 4 historically possessed wetland characteristics, including mottled, hydric soils, saturation, and hydrophytic vegetation. Sources of hydrology are numerous and varied throughout Area 4, with some areas that are influenced by freshwater seeps or saline groundwater, as well as other depressional areas which accumulate surface precipitation. Therefore, the wetlands within agricultural fields have edaphic and hydrologic characteristics spanning a range from fresh to brackish to saline. Current and historical degrees of coastal influence, as well as high saline groundwater tables, generally increase in the southern and western portions of Area 4 south of the agricultural road (Figure 4). Moreover, the amount of salts held by the soils in these areas means that the majority of agricultural wetlands in Area 4, or approximately 187 ac, are at least somewhat brackish to fully saline. As a result of seasonal drying and the subsequent accumulation of salts over time, these

areas are moderately to extremely high in alkalinity and/or salinity. Two large areas and one small area southwest of the railroad tracks, totaling approximately 15.4 ac, receive enough freshwater influence from precipitation and seeps to be classified as mildly brackish to fresh (Figure 4).

As stated previously, the majority of areas south of the agricultural road in Area 4 were historically tidal wetlands. After the construction of the outboard levee in the late 1800s, these areas likely continued to support diked salt marsh habitat types perennially, until the installation of the first pump in the southern portion of the site to Mowry Slough. This pump was likely installed by early settlers to utilize the site for portions of the year for dryland farming, and depending on the year, greater areas of the site were farmed. When the two duck clubs were constructed in the mid-1900s, this pump system was upgraded, ditches and the duck clubs were constructed on the site, and additional pumps were installed to transfer water between ponds to create suitable habitat for ducks. However, even during the duck club era, many areas of the site were planted, in part to attract wildlife. The annual preparation of the agricultural fields occurs after the winter rains have ceased as the majority of the site, including upland areas, is dominated by heavy clay soils that prohibit the use of agricultural equipment during the winter. In addition, depending on the contribution of precipitation and groundwater within the site, some areas of the Project site may not be disked, planted, or harvested, particularly in “wet” years. The harvest of areas mapped as seasonal wetland is typically small compared to upland areas, and during wet years, when little wheat or barley can grow in these areas, they are mowed but not harvested, as harvesting is not economically efficient.

Despite these on-going agricultural practices, the agricultural wetlands in Area 4 continue to exhibit hydric soil characteristics and show indicators of active wetland hydrology. Upland cultivated crops do very poorly in these areas, exhibiting stressed, stunted growth and low ground cover. Instead, these areas mainly support hydrophytic grasses and forbs that establish naturally and dominate the vegetation due to the inability of cultivated upland grasses to germinate in or survive long periods of inundation or saturation. Dominant vegetation in these areas includes rabbitsfoot grass, Mediterranean beard-grass (*Polypogon maritimus*), Italian wild-rye, Mediterranean barley (*Hordeum marinum*), annual bluegrass (*Poa annua*), and curved sickle grass (*Parapholis incurva*). Hydrophytic and/or salt-tolerant forbs are also frequent and include bird’s foot trefoil, scarlet pimpernel (*Anagallis arvensis*), brass buttons (*Cotula coronopifolia*), and, in the more saline wetlands, slenderleaf ice plant (*Mesembryanthemum nodiflorum*) and sticky sand-spurrey (*Spergularia macrotheca*). In areas with the longest period of inundation, halophytes such as pickleweed (*Salicornia virginica*) occur in the most saline areas, while cattails (*Typha* sp.) occur in areas supporting freshwater seeps. Agricultural wetland areas across the site are typically topographically depressed relative to surrounding areas even following planting, and flooding may be augmented by the formation of a plow layer that retards infiltration.

In 2008, these areas were not disked or planted until October, and large areas of agricultural field located in the eastern portion of Area 4 were dominated by annual pickleweed (*Salicornia europaea*) through September before diskings occurred.

**Wildlife.** In some parts of the San Francisco Bay area, seasonal wetlands near the bay provide important foraging and loafing habitat for waterbirds (LSA Associates 1989, Goals Project 1999). Waterfowl and some shorebird species forage in wetter areas regardless of the tidal stage in adjacent estuarine areas. Other shorebirds, such as western sandpipers (*Calidris mauri*), dunlin (*Calidris alpina*), and black-bellied plovers (*Pluvialis squatarola*), prefer to forage on intertidal mudflats at low tide and use seasonal wetlands as alternate foraging and roosting areas during high tide when their favored foraging habitat is inundated. Long-billed curlews (*Numenius americanus*) and killdeer often forage in fields, including cultivated seasonal wetlands. Although seasonal wetlands in their dry condition (e.g., in summer and fall) can be used by roosting birds, the hard nature of the dry substrate and low prey availability during dry conditions make these areas useful to foraging shorebirds primarily when wet in late fall, winter, and early spring.

When the Whistling Wings Duck Club occupied the southern portion of Area 4, the seasonal wetlands in this area were likely used heavily by waterbirds during the wet season. Since they were converted to agricultural uses, these seasonal wetlands have continued to provide suitable foraging and roosting habitat for smaller numbers of waterbirds, and several such species have been observed by H. T. Harvey & Associates ecologists during our field work on the site. Waterbirds observed using the seasonal wetlands on the site include American coots (*Fulica americana*), shorebirds such as the American avocet (*Recurvirostra americana*), black-necked stilt (*Himantopus mexicanus*), greater yellowlegs (*Tringa melanoleuca*), least sandpiper (*Calidris minutilla*), long-billed dowitcher (*Limnodromus scolopaceus*), and Wilson's snipe (*Gallinago delicata*) and waterfowl such as the Canada goose (*Branta canadensis*), green-winged teal (*Anas crecca*), mallard (*Anas platyrhynchos*), and gadwall (*Anas strepera*). Gulls such as the California gull (*Larus californicus*) and herring gull (*Larus argentatus*) that forage at the adjacent Tri-Cities Landfill occasionally roost or bathe in the seasonal wetlands in Area 4. Although moist-soil conditions likely provide suitable foraging habitat for all these waterbirds, the vast majority of observations of these species have been in seasonal wetlands that support open water; such wetlands represent a minority of the areas mapped on Figure 4 as seasonal wetlands.

While our observations confirm the occasional use of seasonal wetlands in Area 4 by waterbirds, we have not observed large numbers of these birds using seasonal wetlands on the site despite extensive work during the wet season over the past several years. During site visits by senior wildlife ecologist S. Rottenborn, Ph.D., on 19 April and 12 May 2006, 13 March 2007, and 6 March 2008, few waterbirds were observed using seasonal wetlands on the site. In contrast, during these site visits, numerous ducks and shorebirds were present in the perennial aquatic habitats and diked salt marsh in the western part of Area 4, primarily in the former Pintail Duck Club but in 2006 also including the aquatic habitats northwest of ACFCWCD Line D.

Table 2 lists the dates and times in which H. T. Harvey & Associates wetlands ecologist K. Hardwicke was at Area 4 conducting wetland delineation field work during the 2006-2007 wet season.

**Table 2. 2006-2007 Winter Survey Dates on Area 4 by K. Hardwicke.**

Date	Time On-Site	High Tide (early)*	High Tide (late)
16 November 2006	8:30 am – 10:30 am	3:53 am	4:59 pm
<b>7 December 2006</b>	<b>8:30 am – 3:00 pm</b>	<b>3:14 am</b>	<b>1:20 pm</b>
11 December 2006	9 am – 2:30 pm	6:24 am	4:53 pm
<b>12 December 2006</b>	<b>8:30 am – 1 pm</b>	<b>12:30 am</b>	<b>1:55 pm</b>
<b>3 January 2007</b>	<b>11 am – 3 pm</b>	<b>1:25 am</b>	<b>11:40 am</b>
<b>18 January 2007</b>	<b>8:30 am – 11 am</b>	<b>1:10 am</b>	<b>11:23 am</b>
6 February 2007	7:30 am – 9:30 am	3:24 am	3:00 pm
13 February 2007	7:30 am – 11 am	3:29 am	4:51 pm
6 March 2007	7:00 am – 9:30 am	1:59 am	2:08 pm
9 March 2007	7:30 am – 3:30 pm	3:18 am	4:52 pm
13 March 2007	8 am – 3 pm	2:56 am	4:18 pm
<b>16 March 2007</b>	<b>7:30 am – 3 pm</b>	<b>12:12 am</b>	<b>11:07 am</b>
<b>20 March 2007</b>	<b>7:30 am – 3 pm</b>	<b>2:10 am</b>	<b>2:47 pm</b>
<b>21 March 2007</b>	<b>7:30 am – 4 pm</b>	<b>2:45 am</b>	<b>3:48 pm</b>
<b>22 March 2007</b>	<b>7:00 am – 6:15 pm</b>	<b>3:23 am</b>	<b>4:56 pm</b>
23 March 2007	7:30 am – 3 pm	4:06 am	6:14 pm
27 March 2007	7:30 am – 1 pm	3:44 am	4:38 pm
<b>3 April 2007</b>	<b>8:30 am – 3 pm</b>	<b>1:43 am</b>	<b>2:28 pm</b>
13 April 2007	7:00 am – 12:30 pm	4:45 am	5:11 pm
24 April 2007	8 am – 10:30 am	2:15 am	2:50 pm

\* At Mowry Slough; data from <http://tidesandcurrents.noaa.gov/>. Dates in bold indicate dates when K. Hardwicke was on-site during or near high-tide conditions.

Nine of these dates coincided with high-tide periods, during which shorebirds that might use the on-site seasonal wetlands as high-tide foraging or roosting habitats should have been present. However, few shorebirds were seen during these site visits (numbers and species were not recorded). Also, except for one occasion when 30 Canada geese were seen, no more than 10 waterfowl were observed in the seasonal wetlands on Area 4 during any one visit.

To better determine the use of seasonal wetlands in Area 4 by waterbirds during the wet season, H. T. Harvey & Associates conducted regular surveys of the site from late November 2008 to early April 2009. These surveys were conducted during high tides, when the potential use of seasonal wetlands as alternative roosting and foraging habitat by birds that otherwise frequent intertidal habitats would be expected to be greatest. Areas surveyed included not only seasonal wetlands in Area 4, but also (for comparison purposes) the aquatic habitats in the former Pintail Duck Club portions of Area 4, visible portions of salt pond M6 located south of Area 4, and the stormwater wetland in the southeastern corner of Area 3. Table 3 contains the results of these surveys, indicating the number of shorebirds (e.g., sandpipers, curlews, stilts, avocets, and plovers), waterfowl (e.g., ducks, geese, and coots), and gulls in each survey area.

**Table 3. Areas 3 and 4 Waterbird Survey Results, November 2008 – April 2009.**

Date	Time On-Site	Approximate Time of Peak Tide*	Waterbird Species Group	Number of Birds in Survey Areas				Observer
				Area 4 Seasonal Wetlands	Area 4 Aquatic Habitats	Salt Pond M6	Area 3 Stormwater Wetland	
11/25/08	9:30 am – 11:25 am	10:30 am	Shorebirds	0	324	1587	3	S. Rottenborn
			Waterfowl	0	169	0	66	
			Gulls	0	0	325	37	
12/31/08	12:00 p.m. – 3:00 p.m.	2:20 p.m.	Shorebirds	0	63	3750	0	S. Demers
			Waterfowl	0	211	0	69	
			Gulls	0	0	1000	33	
01/06/09	7:55 a.m. – 9:51 a.m.	7:34 a.m.	Shorebirds	0	45	4100	0	S. Demers
			Waterfowl	0	79	0	90	
			Gulls	1	0	600	3	
01/09/09	10:45 – 12:30 a.m.	11:40 a.m.	Shorebirds	1	326	1495	0	S. Rottenborn
			Waterfowl	0	303	0	57	
			Gulls	1	0	1750	0	
01/21/09	7:45 a.m. – 9:58 a.m.	8:43 a.m.	Shorebirds	0	297	1250	0	S. Demers
			Waterfowl	0	190	0	46	
			Gulls	0	0	1000	0	
01/26/09	11:00 a.m. – 1:01 p.m.	12:12 p.m.	Shorebirds	0	324	885	0	S. Demers
			Waterfowl	0	82	0	101	
			Gulls	0	0	1900	0	
2/5/09	7:15 a.m. – 8:42 a.m.	8:05 a.m.	Shorebirds	0	267	445	0	S. Demers
			Waterfowl	0	65	0	56	
			Gulls	1	0	921	0	
2/10/09	11:00 a.m. – 12:57 p.m.	12:49 p.m.	Shorebirds	2	312	0	0	S. Demers
			Waterfowl	0	103	0	6	
			Gulls	0	0	1750	0	

Date	Time On-Site	Approximate Time of Peak Tide*	Waterbird Species Group	Number of Birds in Survey Areas				Observer
				Area 4 Seasonal Wetlands	Area 4 Aquatic Habitats	Salt Pond M6	Area 3 Stormwater Wetland	
2/21/09	9:05 a.m. – 10:14 a.m.	9:55 a.m.	Shorebirds	13	446	0	0	S. Demers
			Waterfowl	17	41	0	50	
			Gulls	2250	0	265	0	
2/26/09	12:59 p.m. – 2:37 p.m.	1:32 p.m.	Shorebirds	0	588	0	2	S. Demers
			Waterfowl	16	56	0	42	
			Gulls	4	1	447	0	
3/9/09	10:40 a.m. – 11:55 p.m.	12:03 p.m.	Shorebirds	0	521	0	6	S. Demers
			Waterfowl	10	13	0	41	
			Gulls	1024	0	98	2	
3/19/09	7:10 a.m. – 8:30 a.m.	7:19 a.m.	Shorebirds	14	446	0	6	S. Demers
			Waterfowl	13	53	0	30	
			Gulls	1	0	500	0	
3/27/09	1:59 p.m. – 3:14 p.m.	2:26 p.m.	Shorebirds	6	336	0	6	S. Demers
			Waterfowl	2	58	2	18	
			Gulls	0	0	50	0	
4/1/09	5:07 p.m. -6:16 p.m.	5:40 p.m.	Shorebirds	56	463	0	4	S. Demers
			Waterfowl	19	40	4	18	
			Gulls	0	0	200	0	

\* Determined by on-site observation of tidal areas in Mowry Slough and/or published estimates of peak high tide.

Our previous observations in Area 4 and the results of the 2008-2009 wet-season surveys indicate that the seasonal wetlands receive little use by waterbirds (aside from occasional gull roosts) relative to the perennial wetlands and aquatic habitats on and immediately adjacent to the Project site. The scarcity of birds in these seasonal wetlands was not a result of abnormally dry conditions, as extensive pools and saturated mud were present in the seasonal wetlands on the site during most surveys, and rainfall during the wet season as of 1 April was approximately 85% of the long-term average.

Possible reasons for the low use of on-site seasonal wetlands by waterbirds include degradation of habitat conditions by a long history of cultivation and the presence of higher-quality habitat in the perennial wetlands on-site or in salt ponds to the south and west of the site. For instance, waterbird use at salt pond M6 was high during late fall and early winter, presumably because shallow water conditions and an abundance of brine shrimp created optimal foraging for shorebirds and gulls. Waterbird use of this pond decreased with the onset of rain, reflecting a reduction in habitat quality in the pond as water levels increased and salinity decreased, thereby reducing foraging opportunities for waterbird species that formerly used the pond. There was a slight increase in waterbird use of seasonal wetlands in Area 4 with the onset of rain and subsequent increase in surface water, but it was not commensurate with the decrease in use of salt pond M6, suggesting that most waterbirds that formerly used salt pond M6 relocated to other habitats in the region. However, waterbird numbers remained relatively constant throughout the survey period in aquatic habitats of the former Pintail Duck Club and the Area 3 stormwater wetland, indicating habitat quality of those sites is much greater for waterbird species than Area 4 seasonal wetlands. Gull use of seasonal wetlands and other aquatic habitats in Areas 3 and 4 was low overall, likely because of abundant foraging opportunities at the nearby Tri-Cities Landfill and available foraging and roosting habitat on salt pond M6. Two surveys did document high gull numbers on Area 4 seasonal wetlands, with the largest gull abundance occurring on a Saturday (2/21/09) when the landfill was closed and food was unavailable. Concurrently, gull use of the landfill during that survey was the lowest recorded during the 14 waterbird surveys.

Grain crops planted in the seasonal wetlands on the site are typically stunted, and the seasonal wetlands often contain sparse, short vegetation in spring. However, because these areas remain moist longer in spring than upland agricultural habitats, they provide cover and foraging habitat for savannah sparrows and western meadowlarks after the upland fields have been harvested. Nevertheless, even the seasonal wetlands are typically mown before these species can successfully nest. During the dry season, wildlife use of the seasonal wetlands on the site is similar to that in the upland agricultural fields on the site.

### **Ruderal, Herbaceous Field**

**Vegetation.** Approximately 134 ac within the Project boundaries is best classified as ruderal, herbaceous fields. This habitat is characterized by an abundance of non-native annual grasses that established naturally, rather than being purposefully seeded as in the agricultural areas. Other weedy ruderal and invasive species, which are adapted to disturbance and ultimately cause the exclusion of native species and habitats where they become established, are also common in this habitat. This habitat occurs adjacent to developed areas, along roadsides, and in fields that

have been disked or previously cleared for construction, such as the large areas north of the Southern Pacific railroad tracks in Area 3 (Figure 4). It includes areas adjacent to the auto wrecking yard, areas within the O'Connor parcel, and peripheral areas adjacent to levee tops throughout the site (Figure 4). The ruderal species observed on the site are common to abundant throughout the region and include black mustard, wild radish, stinkweed (*Dittrichia graveolens*), tarweed (*Hemizonia pungens*), wild lettuce (*Lactuca serriola*), sow thistle (*Sonchus oleraceus*), Cornish mallow (*Lavatera cretica*), cheeseweed (*Malva parviflora*), milk thistle (*Silybum marianum*), Italian ryegrass, wild oats (*Avena fatua*), and various bromes, including ripgut brome (*Bromus diandrus*). Additional species such as bristly ox-tongue (*Picris echioides*), spearscale (*Atriplex triangularis*), and perennial pepperweed (*Lepidium latifolium*) occur in wetter areas in this habitat, though these species were generally uncommon in upland ruderal habitats as they are variably halophytic and/or hydrophytic.

**Wildlife.** Ruderal habitats on the Project site support a number of wildlife species that are relatively common throughout the South Bay region due to the regional abundance of similar habitats. Gopher snakes and western fence lizards are the most commonly encountered reptiles in ruderal habitats on the site. Few birds nest in such habitats due to the sparse nature of vegetation in these areas, but small numbers of Bryant's savannah sparrows, western meadowlarks, mourning doves (*Zenaida macroura*), California towhees (*Pipilo crissalis*), red-winged blackbirds (*Agelaius phoeniceus*), and lesser goldfinches (*Carduelis psaltria*) nest in these areas. Several pairs of burrowing owls have also been recorded breeding in ruderal habitats on the Project site, both along the sides of levees and in vacant lots. A number of other bird species, such as the red-tailed hawk, American kestrel, northern harrier, house finch (*Carpodacus mexicanus*), American goldfinch (*Carduelis tristis*), white-crowned sparrow (*Zonotrichia leucophrys*), golden-crowned sparrow (*Zonotrichia atricapilla*), and European starling (*Sturnus vulgaris*), forage in ruderal habitats on the site. Sparrows and finches also use ruderal habitat containing taller vegetation, such as on the O'Connor parcel and along the Mowry Slough levee, for cover while foraging in adjacent open areas.

Mammals observed or expected to use ruderal habitats on the site include house mice (*Mus musculus*), Norway rats (*Rattus norvegicus*), California voles (*Microtus californicus*), deer mice (*Peromyscus maniculatus*), desert cottontails, California ground squirrels, black-tailed hares, and feral cats (*Felis catus*).

## Developed

**Vegetation.** Approximately 195 ac of the 889-ac site is currently developed. The developed areas on Area 4 include the Southern Pacific railroad tracks and associated crossings, the auto-wrecking yard along Mowry Avenue, a metal barn used to house tractors and equipment, one residence south of the railroad tracks near Stevenson Boulevard, and a barn/shed near the existing residence in Area 4. In Area 3, developed areas include the Silliman Recreation Complex and baseball fields, Fire Station Number 3, the Ohlone College buildings, and commercial development in the campus industrial park area (Figure 4). Roads and areas within commercial development areas are typically paved, while the railroad track bed is formed from compacted rock. Vegetation in developed areas is minimal and in most areas is restricted by mechanical or chemical maintenance, chemical contamination, and soil compaction. Ruderal

herbs that are locally common, such as wild oat, ripgut brome, cheeseweed, black mustard, and prickly lettuce, also occur sporadically within developed areas. In the fields surrounding Ohlone College and the Silliman Recreation Complex, there are turf grasses and planted landscape species.

**Wildlife.** Some wildlife species, especially introduced species such as the European starling, house sparrow (*Passer domesticus*), rock pigeon (*Columba livia*), house mouse, black rat (*Rattus rattus*), and Norway rat, are typical of developed habitats, even those disturbed to the degree of those at this site. Native bird species such as mourning doves, northern mockingbirds (*Mimus polyglottos*), American crows (*Corvus brachyrhynchos*), house finches, lesser goldfinches, bushtits (*Psaltiriparus minimus*), California towhees, and Brewer's blackbirds (*Euphagus cyanocephalus*) also forage and breed in landscaped and ornamental vegetation in developed areas on the site. Native mammals occurring in developed portions of the Project site are primarily common, widespread species such as Botta's pocket gopher (*Thomomys bottae*), California ground squirrel, and raccoon (*Procyon lotor*). Several species of bats, including the Mexican free-tailed bat (*Tadarida brasiliensis*), western red bat (*Lasiurus blossevillei*), Yuma bat (*Myotis yumanensis*), and others, have the potential to roost in Area 4, where a residence just south of the intersection of Stevenson Boulevard and the Southern Pacific railroad in Area 4; two agricultural structures (barn or equipment holding sheds) in the eastern portion west of the residence; industrial buildings within the auto wrecking yard in the northwestern part of Area 4; and blue gum eucalyptus trees near the auto wrecking yard along Mowry Avenue provide potential roost sites.

## **Aquatic**

**Vegetation.** Aquatic habitat occupies approximately 39 ac within the Project boundaries, mostly occurring within Area 4 (Figure 4). The majority of aquatic habitat on the site occurs as open water that is either bordered by diked or muted tidal marsh or agricultural wetlands. More fragmented aquatic habitat on the site occurs within various agricultural ditches (either excavated or following original low-flow channels), in remnant, artificial, or main slough channels bordered by levees, and in a mitigation wetland in the southeastern corner of Area 3. Ephemeral water bodies also occur during the winter in the many man-made and topographic depressions on the site. It is expected that most of these water bodies are mixosaline (fresher than ocean water) to eusaline (as salty as ocean water) in terms of their water chemistry. The aquatic habitat in the southeastern portion of Area 4 is affected by a ground water table shared with the nearby salt pond complexes, is hypersaline (more salty than ocean water), and supports dense colonies of red algae similar to the salt ponds. Much of the former duck club areas hold water in the winter as a result of precipitation, topography, plow layer formation, and elevation with respect to the water table, but these areas are only seasonally ponded and were thus classified as agricultural wetlands. The largest contiguous aquatic habitat on the site occurs in the east-central portion of Area 4 in what is also part of the former duck club complex (the Pintail Duck Club) and now represents some of the least disturbed wetland habitat within the Project area. One notable agricultural ditch connects marsh habitat in this area, along the north side of the agricultural road, to ditches that surround the O'Connor parcel. It is important to note that in summer 2008, a tide gate located near the confluence of ACFCWCD Line D and

ACFCWCD Line B/Mowry Slough that previously leaked water onto the site perennially was replaced, likely eliminating this perennial source of saline water to the area.

Limited vegetation occurs within most of the aquatic habitat due to regular maintenance, salinity, water depth, and/or current. Therefore, the only species occasionally observed within the variety of aquatic habitats on the site included those associated with adjacent habitats such as cattails, alkali bulrush, pickleweed, and brass buttons.

**Wildlife.** The aquatic habitats on the site interface with a variety of aquatic vegetation types depending upon water salinity, depth and a number of other factors, which in turn influence wildlife species composition. Wetlands and their associated vegetation support species rich assemblages and many of the wildlife species on the site occur primarily in perennial aquatic habitat areas. In addition, wetlands provide water, forage and cover for terrestrial species in the area.

The former Pintail Duck Club supports large numbers of waterfowl and shorebirds year-round. Breeding birds here include mallards, gadwall, American coots, Canada geese, black-necked stilts, and American avocets. Numbers of these species are augmented in winter and during migration by numerous other waterfowl species, including northern pintails (*Anas acuta*), northern shovelers (*Anas clypeata*), ruddy ducks (*Oxyura jamaicensis*), green-winged teal, and cinnamon teal (*Anas cyanoptera*). Great blue herons (*Ardea herodias*), great egrets (*Ardea alba*), black-crowned night-heron (*Nycticorax nycticorax*), and snowy egrets (*Egretta thula*) forage in these areas as well. Concentrations of migrant and wintering shorebirds are always highest in the former Pintail Duck Club, but stilts, avocets, greater yellowlegs, lesser yellowlegs (*Tringa flavipes*), western sandpipers, and long-billed dowitchers were also observed foraging in the aquatic habitats along the northwest side of ACFCWCD Line D before the flapgate between this area and Mowry Slough was repaired. The mitigation wetland in the southeastern corner of Area 3 typically supports moderate numbers of shorebirds and waterfowl as well, and small numbers of mallards and gadwall forage and brood young in the ditch along the southwestern edge of Area 4 and in ACFCWCD Line D. However, other ditches on the site typically contain only shallow water and/or are wet only during the wet season and thus are used little by waterbirds. Gulls occasionally roost in the aquatic habitat in the extreme southeastern corner of Area 4, but this area is so highly saline that it receives little wildlife use.

Pacific treefrogs (*Pseudacris regilla*) and western toads (*Bufo boreas*) are the only amphibians likely to occur in the Project area. These species may breed in freshwater habitats, such as the mitigation wetland in the southeastern corner of Area 3, but are expected to make little use of brackish and saline aquatic habitats. Garter snakes (*Thamnophis* spp.) forage in these freshwater areas as well.

## **Diked Salt Marsh**

**Vegetation.** Diked salt marsh habitat occurs on approximately 29 ac in Area 4. The largest area of diked salt marsh surrounds the aquatic habitats in the former Pintail Duck Club. Narrow bands of this habitat type also occur along levees, drainage channels, and ditches (Figure 4). This habitat is similar to, but less diverse than, highly productive salt marsh habitat. Diked salt

marshes on the site are dominated by herbaceous salt-tolerant hydrophytes forming moderate to dense cover from 1.5 ft to 6 ft tall, thus appearing superficially very similar to highly productive salt marsh habitat described by Holland (1986). This habitat type also contains aquatic habitat that is seasonal in some areas and perennial in others.

The largest diked marsh area was formerly established and used by the former Pintail Duck Club. It does not appear that this area was ever subject to farming for any length of time, although in dry years, agricultural use has occurred within fringe portions of this habitat. This habitat is not subject to tidal influence and therefore has been subject to stagnation (where inundated) and elevated concentration of salts. These factors have promoted the establishment of pickleweed over other species, thereby reducing diversity. In addition to the abundant pickleweed dominating these areas, saltgrass (*Distichlis spicata*), swampgrass (*Crypsis* sp.), slender-leaved iceplant (*Mesembryanthemum nodiflorum*), and brass buttons are common to locally abundant in some areas. Small areas of this diked marsh appear to be somewhat freshwater-influenced, as they are dominated by perennial, emergent, herbaceous monocots up to 6 ft tall offering patches of dense cover. Taller monocots include species such as common reed (*Phragmites australis*), alkali bulrush, and cattails, and these same species are stunted or absent in the hypersaline areas where stagnation occurs. In areas subject to less stagnation, coast gumweed (*Grindelia stricta*) occurs in isolated patches.

The large ditch near the pump that moves water from the perimeter ditch that surrounds the site into Mowry Slough is dominated by pickleweed, but other ditches supporting diked tidal marsh on the site also include alkali heath (*Frankenia salina*) and some ruderal species, such as prickly ox-tongue, prickly lettuce, and black mustard.

**Wildlife.** This diked salt marsh provides high-quality habitat for the federally endangered salt marsh harvest mouse. The primary cover of this habitat, pickleweed with variously distributed grasses and other upland plants, provides escape cover and food for the salt marsh harvest mouse. Other mammals also expected in this habitat include the California vole, western harvest mouse (*Reithrodontomys megalotis*), house mouse, and possibly the salt marsh wandering shrew (*Sorex vagrans halicoetes*) and long-tailed weasel (*Mustela frenata*). Birds that nest within this habitat include the mallard, gadwall, American coot, song sparrow (*Melospiza melodia*), San Francisco common yellowthroat (*Geothlypis trichas sinuosa*), Bryant's savannah sparrow, western meadowlark, and red-winged blackbird, and possibly the northern harrier.

### **Muted Tidal Salt Marsh**

**Vegetation.** Muted tidal marshes occupy approximately 6.6 ac within the Project area, and are restricted to areas northwest of the ACFCWCD Line D (Figure 4). The muted tidal marsh on the site, which is situated adjacent to the wrecking yard, is primarily supported by incident rainfall and surface runoff. It also is subject to some tidal influence through an approximately 12-in diameter culvert, which until recently was only partially operational due to a faulty closing mechanism. As a result, this culvert leaked water from Mowry Slough into the muted tidal salt marsh at relatively high tide events. In summer 2008, this culvert was repaired. Based on observations made in September 2008, the culvert no longer leaks, thus eliminating the leakage of saline water from Mowry Slough into this area. Despite the removal of the relatively minor

contribution of muted tidal water, this marsh is expected to continue to function as a salt marsh supported by rainfall.

The muted tidal salt marsh is similar to but less saline than the diked salt marsh. Species composition is similar, with pickleweed, sticky sand spurrey, brass buttons, and alkali heath common throughout. However, tall emergent graminoids are mostly absent from these areas and the overall vegetation height rarely exceeds 1 ft to 2 ft. Additionally, this area has been disked within the past 3 years, disturbing the pickleweed cover. In some of these areas, Russian thistle (*Salsola tragus*) has responded favorably to the disturbance and colonized areas previously dominated by pickleweed. However, since Russian thistle does not tolerate long periods of soil saturation or very salty habitats, this infestation appears to be in the process of naturally reverting back to pickleweed-dominated marsh, except in the drier upland marsh ecotone.

**Wildlife.** The muted tidal salt marsh areas on the Project site provide habitat for many of the same wildlife species that use the diked salt marsh. For example, pickleweed in the muted tidal areas provides suitable habitat for the Bryant's savannah sparrow, salt marsh harvest mouse, and possibly the salt marsh wandering shrew. However, vegetation height and density is lower in most of this habitat type than in some of the diked salt marsh, limiting cover for larger species. Due to the limited extent of muted tidal salt marsh habitat on the Project site, many of the wildlife species present here are those occurring in adjacent aquatic and ruderal habitats.

### **Freshwater Marsh**

**Vegetation.** This habitat, occurring on approximately 5 ac mostly associated with a mitigation wetland in Area 3 located south of the campus industrial park (Figure 4), is typically dominated by perennial, emergent monocots up to 15 ft in height. This habitat also occurs within various ditches on the site and in one area north of the railroad tracks. As described in Holland (1986), this habitat sometimes forms completely closed canopies. This type of marsh is usually permanently inundated, although it may seasonally dry for short periods of time. Cattails dominate the areas of freshwater marsh almost exclusively, but other ruderal wetland species such as bristly ox-tongue, poison hemlock (*Conium maculatum*), and perennial pepperweed also occur along the border between freshwater marsh and ruderal habitats, where adjacent levees aid water impoundment.

**Wildlife.** Freshwater marsh emergent vegetation on the site supports breeding passerines such as San Francisco common yellowthroats, marsh wrens (*Cistothorus palustris*), song sparrows (*Melospiza melodia*), and red-winged blackbirds. American coots also nest within the freshwater marsh around the mitigation wetland in the southeastern corner of Area 3. Pacific treefrogs and western toads occur in this habitat type as well.

### **Brackish Marsh**

**Vegetation.** Brackish marsh, forming in an area with mixosaline water, occurs on approximately 2.6 ac on the site. This habitat is dominated by perennial, emergent herbaceous monocots up to 6 ft tall, and offers dense cover. Within the Project area, this habitat is restricted to a low depression area surrounded by saline to brackish agricultural field/seasonal wetland

(Figure 4). The ditch that occurs north of the agricultural road is also mapped as brackish marsh. It is dominated by pickleweed in some areas and connects to additional ditches north of the existing barn on the agricultural road and north to the Southern Pacific railroad tracks (around the O'Connor parcel) that are dominated by cattails. In general, dominant species observed in brackish marsh habitat include common reed, cattails, and alkali bulrush. These habitat areas are influenced by seep and are thus permanently inundated. It is important to note that, depending on the amount of water present in the numerous agricultural ditches present on the site, these areas may also contain brackish marsh habitat, muted tidal salt marsh habitat, or aquatic habitat.

**Wildlife.** Due to the limited extent of brackish marsh habitat on the site, it does not support a distinctive wildlife community. Common wildlife species using the brackish marsh on the site represent a mix of species using salt and freshwater marshes, including the San Francisco common yellowthroat, song sparrow, red-winged blackbird, western harvest mouse, and salt marsh harvest mouse.

### **Seasonal Wetland**

**Vegetation.** Approximately 4 ac of seasonal wetlands that are not in active cultivation occur on in Area 4 (Figure 4). These areas are distinguished from seasonal wetlands within agricultural fields in that they are not regularly disked, planed, planted, and harvested. Seasonal wetlands occur south of the Southern Pacific railroad tracks on the O'Connor parcel in Area 4 and near the developed areas along the southern border of Area 3 (south of the campus industrial park) (Figure 4). During the August 2006 and July 2007 survey periods, these areas contained thick algal matting, sediment deposits, and hydrophytic vegetation. In addition, the wetlands occur within clearly defined depressions, and exhibit active seasonal hydrology driven by freshwater runoff. Seasonal wetlands on the site are characterized by the presence of annual hydrophytes such as loosestrife hyssop (*Lythrum hyssopifolium*), bristly ox-tongue, Mediterranean barley, sourclover (*Melilotus indica*), Italian ryegrass, Bermuda grass (*Cynodon dactylon*) and rabbitsfoot grass. Seasonal wetland habitats located west of the intersection of Stevenson Boulevard and the Southern Pacific railroad tracks variably contain pickleweed, saltgrass, Italian ryegrass, and rabbitsfoot grass. Seasonal wetland habitats near disturbed areas along the railroad track, particularly near the existing residence on the site, are dominated by thickets of perennial pepperweed.

**Wildlife.** Most of the non-cultivated seasonal wetlands on the Project site are so small that the species using them are primarily those associated with adjacent habitats. The seasonal wetlands within the O'Connor parcel support taller, denser, more diverse vegetation than other examples of this habitat type on the Project site. Pickleweed within the seasonal wetlands on the O'Connor parcel provides ostensibly suitable habitat for the salt marsh harvest mouse, although the isolation of this habitat from extensive areas of higher-quality pickleweed to the west may preclude the harvest mouse's presence here. Red-winged blackbirds nest within these seasonal wetlands, and western toads and Pacific treefrogs may breed in those depressions that pond water well into spring.

## Wrecking Yard Detention Basins

**Vegetation.** Two detention basins along the southeastern edge of the auto wrecking yards support seasonal inundation, and plants typical of freshwater marsh habitat occurs at the edges of these basins. These areas generally support vegetation similar to that described above for aquatic and freshwater marsh habitats, but periodic disturbance associated with the wrecking yards, as well as contamination by runoff from the wrecking yards, has degraded habitat conditions within these basins. These basins were not claimed as jurisdictional Waters of the U.S. by the USACE.

**Wildlife.** Wetland-associated species similar to those described for freshwater marsh habitat above occur in these two basins. However, water quality within the basins is expected to be poor due to contamination from runoff, and the limited extent of marsh habitat limits the abundance of wetland-associated species.

## Coastal Scrub

**Vegetation.** This habitat, which occupies approximately 2 ac of the Project area, is typically dominated by dense shrubs up to 6 ft tall with scattered grassy openings (Holland, 1986). This habitat is found only within the O'Connor parcel located adjacent to and south of the Southern Pacific railroad tracks in the central portion of Area 4 (Figure 4). This area contains large amounts of imported soil fill material and is apparently the site of an active, "homemade" paintball course. The dominant species is coyote brush (*Baccharis pilularis*), but various ruderal species, including wild oats, cheeseweed, and black mustard, among others, also occur in the grassy openings between shrubs. The area is also invaded by the exotic lollipop tree (*Myoporum luteum*), which replaces the typical native associates found in Franciscan coastal scrub such as California buckwheat. The structure of this degraded habitat best approximates the coastal scrub habitat type, with low trees and shrubs providing shading, vertical structure, and inputs of woody debris over a grassy upland exposed to coastal winds. However, the non-native species composition, along with visible evidence of recent disturbance and dumping of trash, combine to form a highly degraded habitat.

**Wildlife.** Although a number of wildlife species are often found in coastal scrub habitats, the relatively small size and disturbed nature of this habitat type on the Project site limit its wildlife habitat value. Example resident avian species include the bushtit, California towhee, and northern mockingbird. During migration, yellow-rumped (*Dendroica coronata*), orange-crowned (*Vermivora celata*), and yellow warblers (*Dendroica petechia*) forage in this habitat. Common yellowthroats and white-crowned, golden-crowned, and Lincoln's sparrows (*Melospiza lincolnii*) winter in coastal scrub on the site.

Other wildlife species associated with coastal scrub on Area 4 include black-tailed hares, desert cottontails, brush rabbits (*Sylvilagus bachmani*), house mice, deer mice, striped skunks (*Mephitis mephitis*), western fence lizards, and gopher snakes.

## **SPECIAL-STATUS PLANT AND WILDLIFE SPECIES**

Information concerning threatened, endangered or other special-status species that may occur in the area was collected from several sources and reviewed by H. T. Harvey & Associates' biologists. These sources included in-house sensitive species maps of the county, the CDFG's CNDDDB (2008), California Wildlife Habitat Relationships species notes (CDFG 1988, 1990a, and 1990b), the California Native Plant Society's (CNPS) *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2008), *The Jepson Manual* (Hickman 1993), *Manual of the Grasses of the United States* (Hitchcock 1971), and miscellaneous information available through the USFWS, CDFG, and technical publications. In addition, the USFWS official species list for the quadrangles surrounding and including the Project site was consulted (USFWS 2008a). The specific habitat requirements and the locations of known occurrences of each special-status species were the principal criteria used for inclusion in the list of species potentially occurring on the site.

We conducted a search of CNDDDB Rarefind published accounts (CNDDDB 2008) for all special-status species within the four USGS Topographic quadrangle maps containing the Project site (Newark, Niles, Mountain View, and Milpitas). In addition, we also queried the 12 quadrangles surrounding these 4, which include: San Jose West, San Jose East, Cupertino, Mindego Hill, Calaveras Reservoir, Palo Alto, La Costa Valley, Redwood Point, Livermore, Dublin, Hayward, and San Leandro. For plants, we reviewed all species on current CNPS Lists 1A, 1B, 2, 3, and 4 occurring in one of the 16 USGS 7.5-minute quadrangles listed above. We also considered all plants occurring within Alameda County, as quadrangle-level records are not kept for CNPS list 4 species. Prior to fieldwork, H. T. Harvey & Associates also reviewed a variety of pertinent technical documents for immediately adjacent Projects, including the Tri-Cities Landfill Closure EIR (2006c) and the South Bay Salt Pond Restoration Project planning documents (PWA 2005).

Figures 5a and 5b depict the CNDDDB records for plants and wildlife, respectively, in the vicinity of the study area. These generalized maps are valuable on a historic basis, but do not necessarily represent current conditions. While these records are not necessarily definitive, they show areas where special-status species have occurred previously.

### **Special-status Species Regulations Overview**

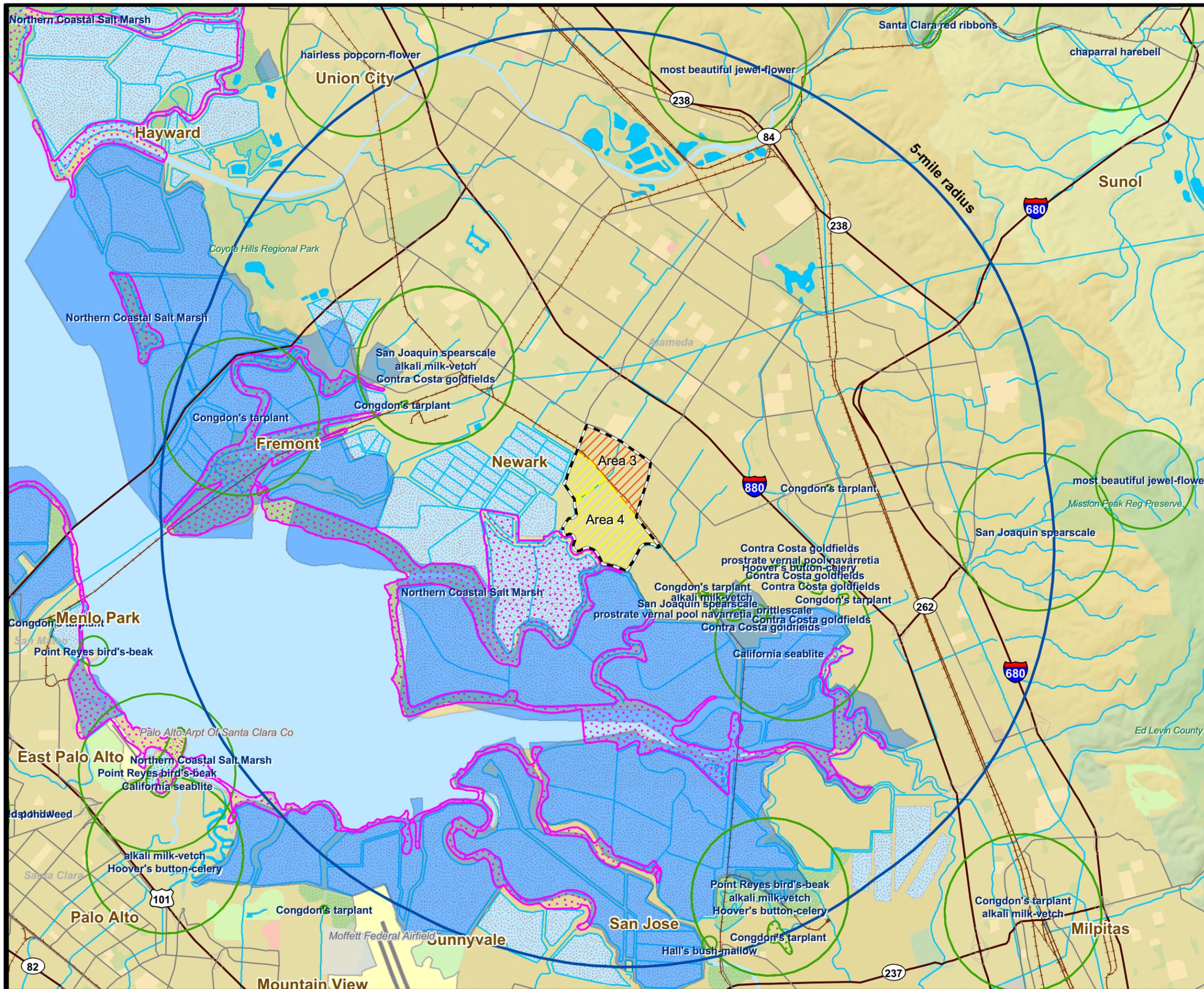
Federal and state endangered species legislation gives special status to several plant and animal species known to occur in the vicinity of the Project site. In addition, state resource agencies and professional organizations, whose lists are recognized by agencies when reviewing environmental documents, have identified as sensitive some species occurring in the vicinity of the Project site. Such species are referred to collectively as "species of special status" and include plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered under the FESA or the California Endangered Species Act (CESA); animals listed as "fully protected" under the California Fish and Game Code; animals designated as "Species of Special Concern" by the CDFG; and plants listed as rare or endangered by CNPS.

FESA provisions protect federally listed threatened and endangered species and their habitats from unlawful take. Under the FESA, "take" is defined as "to harass, harm, pursue, hunt, shoot,

wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct.” The USFWS regulations define harm to mean “an act which actually kills or injures wildlife.” Such an act “may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering” (50 CFR §17.3). Activities that may result in “take” of individuals are regulated by the USFWS. The USFWS produced an updated list of candidate species December 6, 2007 (50 CFR Part 17). Candidate species are not afforded any legal protection under FESA; however, candidate species typically receive special attention from federal and state agencies during the environmental review process.

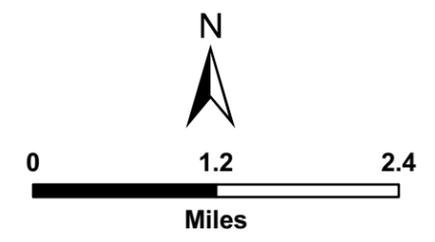
Provisions of CESA protect state-listed threatened and endangered species. CDFG regulates activities that may result in “take” of individuals (*i.e.*, “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”). Habitat degradation or modification is not expressly included in the definition of “take” under the California Fish and Game Code. Additionally, the California Fish and Game Code contains lists of vertebrate species designated as “fully protected” (California Fish and Game Code §§ 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], 5515 [fish]). Such species may not be taken or possessed.

The CDFG maintains three lists of “species of special concern” that serve as “watch lists.” Species on these lists either are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Thus, their populations should be monitored. They may receive special attention during environmental review, but do not have statutory protection under CESA although many of these species are protected under other state and federal laws. California Species of Concern receive no legal protection as a result of their designation as Species of Special Concern, and the use of the term does not necessarily mean that the species will eventually be proposed for listing as a threatened or endangered species. However, most, if not all, of these species are currently protected by state and federal laws.



# CNDDDB Legend

- Plants**
- Specific Location
  - Approximate Location
  - General Area
- Terrestrial Communities**
- General Area
  - Project Location
  - Don Edwards Refuge



**H. T. HARVEY & ASSOCIATES**  
 ECOLOGICAL CONSULTANTS

Newark Areas 3 & 4 - Specific Plan DEIR Biological Resources Section: CNDDDB Plant Records

Proj No. 2596-04	Date Feb. 2009	Figure 5a
SM	N:\Projects\2596-04\Biotic Study for EIR Figures	



Raptors (*e.g.*, eagles, hawks, and owls) and their nests are protected under both federal and state regulations. The federal Migratory Bird Treaty Act<sup>1</sup> (MBTA) 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. Birds of prey are protected in California under the State Fish and Game Code. Section 3503.5 states 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.” Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “take” by the CDFG.

Vascular plants listed as rare or endangered by the CNPS, but which have no designated status under state endangered species legislation, are defined as follows:

- List 1A. Plants presumed to be extirpated or extinct.
- List 1B. Plants rare, threatened, or endangered in California and elsewhere.
- List 2. Plants rare, threatened, or endangered in California, but more numerous elsewhere.
- List 3. Plants about which we need more information – a review list.
- List 4. Plants of limited distribution – a watch list.

These CNPS listings are further described by the following threat code extensions:

- .1—seriously endangered in California.
- .2—fairly endangered in California.
- .3—not very endangered in California.

Impacts to plants on list 1 and 2 are typically assumed to meet CEQA’s threshold of significance. The CNPS considers it to be mandatory that these species are fully considered during the preparation of environmental documentation relating to CEQA. Very few list 3 and 4 plants meet the definitions of Section 1901 Chapter 10 Native Plant Protection Act or Sections 2062 and 2067 California Endangered Species Act of the CDFG Code and are eligible for state listing. However, the CNPS strongly recommends that these species be fully considered during the preparation of environmental documentation relating to CEQA. This may be particularly appropriate for the type locality of a List 4 plant, for populations at the periphery of a species range or in areas where the taxon is especially uncommon or has sustained heavy losses, or from populations exhibiting unusual morphology or occurring on unusual substrates.

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<sup>1</sup> 16 U.S.C., Sec. 703, Supp. I, 1989.

## Special-status Plant Species

Reconnaissance-level surveys were conducted on 10, 13, and 14 August 2006 for habitats capable of supporting special-status plant species. We then queried the CNDDDB and CNPS records as described above to determine which special-status plant species could occur within habitats found at the Project site. Specifically, the habitats queried were valley and foothill grassland, vernal pools, and marshes and swamps at elevations that occur within the Project site.

Twenty-six special-status plant species were identified in these queries as occurring within Alameda County or in at least one of the 16 quads listed above (containing the Project site or surrounding the quads containing the Project site) within habitats located on the site. An additional seven species were listed in CNDDDB records or USFWS lists, but were not included on the CNPS lists queried. Of these 33 special-status plant species considered for occurrence on the Project site, 12 were reported as occurring within a 5-mi radius of the Area 3 and 4 Project site by the CNDDDB (Figure 5a), including San Joaquin spearscale (*Atriplex joaquiniana*), brittlescale (*Atriplex depressa*), Hoover's button-celery (*Eryngium aristulatum* var. *hooveri*), Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), alkali milk-vetch (*Astragalus tener* var. *tener*), Contra Costa goldfields (*Lasthenia conjugens*), prostrate vernal pool navarretia (*Navarretia prostrata*), California seablite (*Suaeda californica*), hairless popcorn flower (*Plagiobothrys glaber*), most beautiful jewel-flower (*Streptanthus peramoenus albidus*), Hall's bush mallow (*Malacothamnus hallii*), and Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*). Of the 33 species considered as potentially occurring on the site, four are federally endangered: Palmate-bracted bird's-beak (*Cordylanthus palmatus*), Contra Costa goldfields, California seablite, and showy Indian clover (*Trifolium amoenum*).

Following an analysis of the microhabitat conditions associated with all of the CNPS and CNDDDB species considered, and the edaphic factors that favor their occurrence, eight species were determined to potentially occur on the site from the 33 species originally considered for occurrence: Contra Costa goldfields, alkali milk-vetch, brittlescale, Condon's tarplant, Hoover's button-celery, prostrate vernal pool navarretia, Delta-woolly-marbles (*Psilocarphus brevissimus* var. *multiflorus*), and San Joaquin spearscale. Table 4 discusses the potential for occurrence of these special-status plant species known to occur or potentially occurring in the general vicinity of the Project site. It is important to note that five of the potentially occurring plants were included because of the presence of suitable habitat capable of supporting these species on site. The remaining three species were included for completeness as they are known to occur in the vicinity of the current Project site, even through habitats capable of supporting these plants do not occur on Areas 3 and 4. The remaining 25 species were determined to be absent from the Project site due to the absence of suitable microhabitats, or due to the fact they have been regarded as extirpated from Alameda County, the most recent occurrences are historic, or they are considered extinct. In addition, the specific variety of coast gumweed (*Grindelia stricta* var. *angustifolia*) has since been "de-listed" by the CNPS, and is omitted from further consideration here. The majority of the species were rejected (Appendix B) for occurrence based on one or more of the following reasons:

1. The species has a very limited range of endemism and has never been observed in the vicinity of the Project site.

**Table 4. Special-status Plant and Animal Species, Their Status, and Potential Occurrence on Newark Specific Plan Areas 3 and 4.**

NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON THE SITE
<b>Federal or State Endangered, Threatened, or Candidate Species</b>			
Contra Costa Goldfields ( <i>Lasthenia conjugens</i> )	FE; CNPS List 1B.1	Mesic (moderate moisture regime) valley and foothill grasslands and vernal pools.	Potentially suitable habitat in Area 4. The species was not observed during protocol or reconnaissance-level surveys. The species is likely absent from the site and surveys confirm it is absent from the impact areas; further surveys are not warranted for purposes of impact assessment.
Vernal Pool Tadpole Shrimp ( <i>Lepidurus packardii</i> )	FE	Vernal pools and swales containing clear to highly turbid water.	Potentially suitable habitat is present in a few seasonal wetlands and pools in Area 4. Known to occur on the Warm Springs Unit of the SFBNWR, and introduced into created vernal pools at Pacific Commons Preserve immediately adjacent to the site, east of the Stevenson Boulevard. crossing of the Southern Pacific railroad tracks. Wet-season surveys in 2006-2007 and 2007-2008 and dry-season surveys in 2008, conducted according to the USFWS protocol, did not detect any evidence of tadpole shrimp. Determined to be absent.
Green Sturgeon – Southern DPS ( <i>Acipenser medirostris</i> )	FT; CSSC	Known to occur in nearshore oceanic waters, bays, and estuaries.	Apparently occurs in the South Bay very rarely, as a nonbreeding visitor. May occur in lower Mowry Slough downstream from Project site. Unlikely to occur on or immediately adjacent to the Project site due to lack of spawning habitat upstream, the shallow/narrow nature of channels, and low water quality.
Longfin Smelt ( <i>Spirinchus thaleichthys</i> )	FPE, SCE	Spawning occurs in fresh or slightly brackish water.	Unlikely to occur on or immediately adjacent to the Project site due to lack of spawning habitat upstream, the shallow/narrow nature of channels, and low water quality. Not known to occur in Mowry Slough, though occurrence downstream from the Project site cannot be ruled out.
Steelhead – Central California Coast DPS ( <i>Oncorhynchus mykiss</i> )	FT	Cool streams with suitable spawning habitat and conditions allowing migration.	Not known to occur on the site or in adjacent Mowry Slough, and no spawning habitat is present on or upstream from the site along ACFCWCD Line B or ACFCWCD Line D. Determined to be absent from the site, but may occur in lower Mowry Slough well downstream from the site.
California Tiger Salamander ( <i>Ambystoma californiense</i> )	FT, CSSC	Vernal or temporary pools in annual grasslands or open woodlands.	Potentially suitable habitat is present in a few seasonal wetland pools in southeastern corner of Area 3 and in Area 4, but most seasonal pools are too saline. Known breeding population located approximately one mile (mi) southeast in the Warm Springs Unit of the SFBNWR (CNDDDB 2008) is within the maximum known dispersal distance from the site, but to date no salamanders have been found on the adjacent Pacific Commons Preserve in highly suitable habitat. Protocol-level larval surveys conducted in suitable habitat on Areas 3 and 4 in 2006-2007 and 2007-2008 did not detect any California tiger salamanders. The possibility of dispersal of a salamander to the site cannot be eliminated, but there is no evidence of current occurrence on-site.
California Red-legged Frog ( <i>Rana aurora draytonii</i> )	FT, SP, CSSC	Streams, freshwater pools, and ponds with emergent or overhanging vegetation.	Marginal habitat in Specific Plan area. Determined to be absent due to the lack of a hydrological connection to known populations, the distance to the nearest record (more than 4 mi to the north and southeast), and the long history of ground disturbance from farming on the site.

NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON THE SITE
California Brown Pelican ( <i>Pelecanus occidentalis californicus</i> )	FE, SE, SP	Nests on islands without mammalian predators. Roosts in river mouths with sand bars, jetties, and breakwater along San Francisco Bay. Feeds on fish.	No suitable habitat on-site, not observed on-site. Determined to be absent.
American Peregrine Falcon ( <i>Falco peregrinus anatum</i> )	SE, SP	Forages in many habitats; requires cliffs for nesting.	Occasionally forages on the site, but does not currently nest in the Project vicinity. However, potential nest sites for future use by this species may occur on power-line towers on or adjacent to Area 4.
California Black Rail ( <i>Laterallus jamaicensis coturniculus</i> )	ST	Breeds in fresh, brackish, and tidal salt marsh.	Non-breeding individuals may winter in small numbers in tidal marsh along Mowry Slough or diked marsh within Area 4, but the species is not currently known to breed in the South Bay. Not observed on-site
California Clapper Rail ( <i>Rallus longirostris obsoletus</i> )	FE, SE, SP	Salt marsh habitat dominated by common pickleweed and cordgrass.	Marginal habitat within Mowry Slough adjacent to Area 4. There are no records within the Project vicinity, and intensive winter surveys along Mowry Slough by the USFWS have not detected the species within 2.4 mi downstream from the site. Not observed on-site, and not expected to occur on or adjacent to the site.
Western Snowy Plover ( <i>Charadrius alexandrinus nivosus</i> )	FT, CSSC (nesting)	Sandy beaches on marine and estuarine shores.	Marginal foraging habitat is present on flats in the diked salt marsh, around the aquatic habitat within the diked salt marsh, and in seasonally moist areas within the more saline agricultural fields in the southern portion of Area 4. However, due to the limited and marginal nature of this foraging habitat, as well as the abundance of much higher-quality habitat in salt ponds in the South Bay, snowy plovers are expected to occur on-site rarely, if at all, and they are not expected to nest on the site. Not observed on-site.
California Least Tern ( <i>Sterna antillarum browni</i> )	FE, SE	Nests along the coast on bare or sparsely vegetated, flat substrates.	Potentially a rare forager in Area 4 where small fish occur, (e.g., ACFCWCD Line D or aquatic habitat, or off-site within Mowry Slough or ACFCWCD Lines B or D). However, occurrence unlikely due to the availability of higher-quality foraging habitat closer to the bay and lack of records from similar habitats in the South Bay. No nesting habitat on-site. Not observed on-site.
Willow Flycatcher ( <i>Empidonax traillii</i> )	FE ( <i>extimus</i> ), SE (nesting)	Breeds locally in riparian habitats in Central Valley and mountains.	While willow flycatchers of other subspecies may forage in Areas 3 and 4 occasionally during migration, no individuals of the listed subspecies are expected to occur in either Area 3 or 4. Determined to be absent.
Bank Swallow ( <i>Riparia riparia</i> )	FT (nesting)	Colonial nester on vertical banks or cliffs with fine-textured soils near water.	May occur on-site as a rare forager during migration, but not regularly or for long duration. No suitable nesting habitat on or near site. Not observed on-site.
Salt Marsh Harvest Mouse ( <i>Reithrodontomys raviventris</i> )	FE, SE	Salt marsh habitat dominated by common pickleweed.	Known to occur in pickleweed stands in diked salt marsh in the vicinity of the former Pintail Duck Club in Area 4 (CNDDDB 2008). Likely present in other locations in Area 4 supporting pickleweed, such as muted tidal salt marsh, brackish marsh, and along channels and ditches.

NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON THE SITE
<b>California Species of Special Concern</b>			
Fall-run Chinook Salmon – Central Valley ESU ( <i>Oncorhynchus tshawytscha</i> )	CSSC	Cool rivers and large streams that reach the ocean and that have shallow, partly shaded pools, riffles, and runs.	Not known to occur on the site or in adjacent Mowry Slough and no spawning habitat is present upstream from site along ACFCWCD Line B or ACFCWCD Line D. Determined to be absent from the site, but may occur in lower Mowry Slough well downstream from the site.
Western Pond Turtle ( <i>Emys marmorata</i> )	CSSC	Permanent or nearly permanent water in a variety of habitats.	Only poor quality habitat is present and this is restricted to the isolated fresh water pools, the ACFCWCD channels, and Mowry Slough. Determined to be absent due to the lack of a hydrological connection to known populations, the lack of any records from the site vicinity, and the long history of ground disturbance from farming on the site. Not observed on-site.
American White Pelican ( <i>Pelecanus erythrorhncos</i> )	CSSC (nesting)	Forages on fish found in freshwater lakes and rivers, nests on islands in lakes.	Could potentially roost or forage in Area 4, and possibly along Mowry Slough. However, due to the abundance of higher-quality foraging habitat in other areas in the South Bay, there is a low probability of occurrence on-site. Not observed on-site.
Northern Harrier ( <i>Circus cyaneus</i> )	CSSC	Nests in marshes and moist fields, forages over open areas.	Wetland vegetation in Area 4, particularly in the diked salt marsh, provides suitable nesting habitat, and one or two pairs could potentially nest in the Project area or in adjacent areas along Mowry Slough, but likely to occur primarily as a forager during winter and migration.
Black Tern ( <i>Chlidonias niger</i> )	CSSC (nesting)	Nests in freshwater marshes, forages over marshes, ponds, lakes, and moist meadows.	Potential visitor to wetlands in Area 4 (former Pintail Duck Club) in fall. Does not nest on-site. Not observed on-site.
Burrowing Owl ( <i>Athene cunicularia</i> )	CSSC	Flat open grasslands and ruderal habitats having suitable burrows.	Several pairs known to nest in ruderal habitat, primarily along levees and along the railroad tracks, in Areas 3 and 4. Expected to forage in a variety of habitats on-site.
Vaux's Swift ( <i>Chaetura vauxi</i> )	CSSC (nesting)	Nests in north coast or montane forests.	Occasional migrant. No suitable nesting habitat on-site.
Loggerhead Shrike ( <i>Lanius ludovicianus</i> )	CSSC (nesting)	Nests in tall shrubs and dense trees, forages in grasslands, marshes, and ruderal habitats.	Suitable nesting and foraging habitat for several pairs is present in Areas 3 and 4 (though areas of potential development in Area 3 provide limited, low-quality habitat). Observed in Area 4.
Yellow Warbler ( <i>Dendroica petechia</i> )	CSSC (nesting)	Nests in riparian woodland.	No suitable nesting habitat on-site. Forages on-site during migration.
San Francisco Common Yellowthroat ( <i>Geothlypis trichas sinuosa</i> )	CSSC	Nests in tall, emergent, herbaceous wetlands.	Nests in dense vegetation in wetlands in Area 4, and possibly in the stormwater wetland in the southeastern corner of Area 3.
Yellow-breasted Chat ( <i>Icteria virens</i> )	CSSC (nesting)	Nests in riparian habitat, primarily that dominated by willows with a dense shrub understory.	No suitable habitat present. Determined to be absent.
Grasshopper Sparrow ( <i>Ammodramus savannarum</i> )	CSSC (nesting)	Nests in moderately open grasslands with scattered shrubs.	May occasionally occur on the site in small numbers during migration, but no nesting habitat present. Not observed on-site.
Alameda Song Sparrow ( <i>Melospiza melodia pusillula</i> )	CSSC	Nests in salt marsh, primarily in marsh gumplant and cordgrass along channels.	This subspecies likely nests along the adjacent reach of Mowry Slough and may nest in the diked salt marsh habitat in Area 4; however, the racial identity of breeding song sparrows on the site is unknown, and those breeding in brackish and freshwater marshes may be more likely to be <i>M. m. goldii</i> or intergrades between the two races.

NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON THE SITE
Bryant's Savannah Sparrow ( <i>Passerculus sandwichensis alaudinus</i> )	CSSC	Nests in pickleweed dominant salt marsh and adjacent ruderal habitat.	Nests and forages in the diked and muted salt marsh in Area 4. May attempt nesting in agricultural fields in Area 4, but such attempts are typically unsuccessful because mowing occurs before young fledge.
Tricolored Blackbird ( <i>Agelaius tricolor</i> )	CSSC (nesting)	Nests near fresh water in dense emergent vegetation.	Dense cattails and bulrushes in the diked salt marsh in Area 4, and possibly in the stormwater wetland in the southeastern corner of Area 3, provide potential nesting habitat, although the species has not been recorded nesting on or near the site. Observed foraging on the site.
Salt Marsh Wandering Shrew ( <i>Sorex vagrans halicoetes</i> )	CSSC	Medium high marsh 6-8 ft above sea level with abundant driftwood and common pickleweed.	Recorded within 2 mi northwest of the site, and pickleweed-dominated habitats in Area 4 provide potential habitat. May be present in diked and muted salt marsh in Area 4. Not recorded on-site.
Pallid Bat ( <i>Antrozous pallidus</i> )	CSSC	Forages over many habitats, requires caves for roosting.	Marginal breeding habitat exists in structures in Area 4. No sign observed during reconnaissance-level survey, and there is a low probability of occurrence. Not observed on-site.
Townsend's Big-eared Bat ( <i>Corynorhinus townsendii</i> )	CSSC	Roosts in caves and mine tunnels in a variety of habitats.	No records from the site or vicinity, and no suitable roosting habitat in the vicinity. Determined to be absent.
Western Red Bat ( <i>Lasiurus blossevillii</i> )	CSSC	Roosts in forest or woodlands, especially in or near riparian habitat.	Does not breed in the site vicinity. May occur in low numbers as an occasional forager during migration and in winter, possibly roosting in eucalyptus trees in Area 4.
American Badger ( <i>Taxidea taxus</i> )	CSSC	Burrows in grasslands.	No suitable habitat on the site and site is isolated from areas of known occurrence by urbanization. Determined to be absent.
<b>State Protected Species or CNPS Listed Species</b>			
Alkali Milk-vetch ( <i>Astragalus tener</i> var. <i>tener</i> )	CNPS 1B.1	Alkaline playas, valley and foothill grassland underlain by adobe clay, and vernal pool habitats.	Potentially suitable habitat on Project site. The species was not observed during protocol or reconnaissance-level surveys. The species is likely absent from the site and surveys confirm it is absent from the impact areas; further surveys are not warranted for purposes of impact assessment.
Brittlescale ( <i>Atriplex depressa</i> )	CNPS 1B.2	Alkaline, clay soils in chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pool habitats.	Potentially suitable habitat on Project site. The species was not observed during protocol or reconnaissance-level surveys. The species is likely absent from the site and surveys confirm it is absent from the impact areas; further surveys are not warranted for purposes of impact assessment.
Congdon's Tarplant ( <i>Centromadia parryi</i> ssp. <i>congdonii</i> )	CNPS 1B.2	Valley and foothill grassland, particularly those with alkaline substrates, and in sumps or disturbed areas where water collects.	Potentially suitable habitat on Project site. The species was not observed during protocol or reconnaissance-level surveys. The species is likely absent from the site and surveys confirm it is absent from the impact areas; further surveys are not warranted for purposes of impact assessment.
Hoover's Button-celery ( <i>Eryngium aristulatum</i> var. <i>hooveri</i> )	CNPS 1B.1	Vernal pools.	Potentially suitable habitat in a degraded state on Project site. The species was not observed during protocol or reconnaissance-level surveys. The species is likely absent from the site and surveys confirm it is absent from the impact areas; further surveys are not warranted for purposes of impact assessment.

NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON THE SITE
Prostrate Vernal Pool Navarretia ( <i>Navarretia prostrata</i> )	CNPS 1B.1	Mesic coastal scrub, meadows and seeps, vernal pools, and alkaline valley and foothill grassland habitats.	Potentially suitable habitat on Project site. The species was not observed during protocol or reconnaissance-level surveys. The species is likely absent from the site and surveys confirm it is absent from the impact areas; further surveys are not warranted for purposes of impact assessment.
Delta Woolly-marbles ( <i>Psilocarphus brevissimus</i> var. <i>multiflorus</i> )	CNPS 4.1	Vernal pools and flats.	Potentially suitable habitat on Project site. The species was not observed during protocol or reconnaissance-level surveys. The species is likely absent from the site and surveys confirm it is absent from the impact areas; further surveys are not warranted for purposes of impact assessment.
San Joaquin Spearscale ( <i>Atriplex joaquiniana</i> )	CNPS 1B.2	Alkaline soils in chenopod scrublands, meadows and seeps, playas, and valley and foothill grasslands.	Potentially suitable habitat on Project site. The species was not observed during protocol or reconnaissance-level surveys. The species is likely absent from the site and surveys confirm it is absent from the impact areas; further surveys are not warranted for purposes of impact assessment.
Golden Eagle ( <i>Aquila chrysaetos</i> )	SP	Breeds on cliffs or in large trees or electrical towers, forages in open areas.	Occasional forager in Area 4, primarily during the non-breeding season. No nesting records within the Project area.
White-tailed Kite ( <i>Elanus caeruleus</i> )	SP	Nests in tall shrubs and trees, forages in grasslands, marshes, and ruderal habitats.	Suitable nesting and foraging habitat present in Areas 3 and 4 (though areas of potential development in Area 3 provide limited, low-quality habitat). Observed in Area 4.

#### SPECIAL STATUS SPECIES CODE DESIGNATIONS

FE = Federally listed Endangered

FT = Federally listed Threatened

FPE= Federally proposed Endangered

SE = State listed Endangered

ST = State listed Threatened

SCE = State Candidate Endangered

CSSC = California Species of Special Concern

SP = State Protected Species

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

CNPS List 4 = Plants of limited distribution-a watch list

.1= seriously endangered in California

.2 =fairly endangered in California

2. Common plants which are nearly always associated with the special-status species, and which indicate the presence of suitable, intact habitat, are absent from the Project site.
3. Specific, edaphic soil characteristics, such as serpentine soils or adobe clays, are absent from the Project site.

In addition to these factors, the Project site is predominantly in active agricultural use or is dominated by ruderal, invasive plant species. The plant species that occur in this habitat are tolerant of, or favored by, frequent disturbance, which tends to favor robust, fast-growing annuals which out-compete native plants which are then unlikely to occur.

Sensitive habitats identified in the CNDDDB query included northern coastal salt marsh, which occurs extensively in the Project vicinity, and currently exists, although perhaps in degraded form, within a portion of the Project site (i.e., the historic duck club area in the west-central portion of Area 4; Figure 4).

H. T. Harvey & Associates plant ecologists A. Breen, Ph.D., and K. Hardwicke, Ph.D., conducted targeted, protocol-level surveys for spring-blooming special status plant species on 27 March and 3 April 2007 and for late-blooming special-status plant species on 26 and 27 July 2007. In addition, we specifically looked for special-status plant species concurrent with the wetland delineation field site visits conducted throughout the winter and spring seasons of 2005-2007. These reconnaissance-level rare plant surveys conducted in concurrence with the wetland delineation site visits were performed within the flowering periods of the special-status plant species considered to potentially occur on the site and were conducted during years of both above-average and below-average rainfall. Protocol-level surveys were conducted by walking the entire Project site, with the exception of the diked salt marsh habitat, within suitable habitat (i.e., recently disked areas were not surveyed if no vegetation was growing within them) at speeds adequate to detect all vascular plant species. Reconnaissance-level surveys were conducted by walking specific portions of the Project site to monitor wetland hydrology. With these reconnaissance-level field surveys associated with the wetland delineation site visits (no fewer than 50 site visits) and with the four protocol-level surveys described above specifically targeting special-status plant species, our professional opinion is that our survey effort was adequate to detect any special-status plant species that could occur within the Project site.

Spring protocol surveys targeted Delta woolly-marbles and Contra Costa goldfields, while late summer surveys targeted alkali milk vetch, Hoover's button-celery, prostrate vernal pool navarretia, Congdon's tarplant, brittle-scale, and San Joaquin sparscale. These species were considered to have potential to occur on the Project site because known populations are located in similar habitats within 5 miles (mi) of the Project site and the necessary edaphic conditions, namely moderately-to-strongly alkaline soils, are present within the Project site. Agricultural fields at the Project site have been in active and continuous cultivation for decades, and had been recently disked at the time of late summer surveys; therefore the de-vegetated field interiors were not surveyed during the second set of protocol-level surveys (although all of these fields had been surveyed extensively in vegetated condition during other site visits throughout 2005-2007, including the summer of 2006). Additionally, the interior of the historic Pintail Duck Club

marsh, southeast of where ACFCWCD Lines B and D converge with Mowry Slough (Figure 4), was inaccessible during both survey periods due to deep, perennially inundated clay soils which create an impassably muddy terrain. Potential habitat for special-status plant species occurs along the interface of marsh habitat and upland habitat, particularly within the mosaic of habitat present in this area. However, all other portions of Areas 3 and 4, including the periphery of disked fields, levees, portions of fields that had not been disked, ruderal yards, annual grasslands, marsh areas visible with binoculars from the PG&E tower service walkways, and all marsh areas that were accessible on-foot were surveyed during the protocol-level survey dates. Results of these targeted, protocol-level surveys, as well as from the extensive and frequent reconnaissance surveys, are reported below.

### **Federal or State Endangered or Threatened Species**

**Contra Costa Goldfields (*Lasthenia conjugens*).** **Federal Listing Status: Endangered; State Listing Status: None; CNPS List 1B.1.** This annual herb from the sunflower family (Asteraceae) occurs in mesic (moderate moisture regime) valley and foothill grasslands and vernal pools. The blooming period is from March to June. The range of this species includes Alameda, Contra Costa, Marin, Napa, Solano, and Sonoma counties, and it is presumed to be extirpated from its historic range in Mendocino, Santa Barbara, and Santa Clara counties (CNPS 2008). There is a single, extirpated occurrence listed within the CNDDDB (2008) within the Newark 7.5-minute quadrangle, an herbarium specimen with no further location or habitat information collected in 1895. Two other extant occurrences in the Milpitas USGS 7.5-minute quadrangle occur in vernal pools and swales, both with a native-dominated floristic composition not observed in any habitats in Areas 3 or 4. One of these records is of a population located at the Sky Sailing Airport, approximately 0.4 mi west of Interstate 880, about 0.4 to 0.8 mi west-northwest of the junction of Cushing Road and Landing Road in Fremont. The other population is located approximately 0.15 mi west of Cushing Road in the Refuge/Pacific Commons Preserve southeast of Auto Mall Parkway in Fremont.

Due to the proximity of known populations of the species, and the presence of potentially suitable habitat on the site, protocol-level surveys for Contra Costa goldfields were conducted on 27 March and 3 April 2007 by A. Breen, Ph.D. and K. Hardwicke, Ph.D., qualified botanists. These surveys were conducted within all suitable habitats except for the interior of the flooded pickleweed wetlands. These latter areas were avoided to avoid impacts to salt marsh harvest mouse habitat and because these areas were so saturated as to be impassable on foot, although portions of these pickleweed marshes were surveyed from the wooden PG&E tower maintenance walkways that bisect the marsh. In addition, reconnaissance-level surveys were conducted in association with the wetland delineation, with no fewer than 50 separate site visits throughout 2005-2007.

Contra Costa goldfields was not detected anywhere on the site during these surveys, and the portions of the diked salt marsh that were unsurveyed will not be directly impacted by this Project. Likewise, these surveys did not find its commonly associated species such as flatface downingia (*Downingia pulchella*) or woolly-marbles (*Psilocarphus brevissimus*). From our experience with the species in other locations, the Contra Costa goldfields is likely absent from the entire site. We have determined that Contra Costa goldfields is absent from all of the direct

impact areas on the Project site, and further surveys are not warranted for the purposes of this impact assessment.

### **State Protected or CNPS Lists**

**Alkali milk-vetch (*Astragalus tener* var. *tener*).** **Federal Listing Status: None; State Listing Status: None; CNPS List 1B.1.** Alkali milk-vetch is an annual herb in the legume family (Fabaceae) that occurs in alkaline playas, valley and foothill grassland underlain by adobe clay, and vernal pool habitats at elevations of 3.3 to 197 ft. The blooming period extends from March through June. The range of this species has been reduced to the remaining alkaline grasslands in Alameda, Merced, Napa, Solano, and Yolo counties, and is presumed to be extirpated from its historical range in Contra Costa, Monterey, San Benito, Santa Clara, San Francisco, San Joaquin, Sonoma, and Stanislaus counties. The CNDDDB (2008) reports several occurrences in the Milpitas, Mountain View, and Newark 7.5-minute quadrangles found in very similar habitats to those on the site (e.g., constructed levees near seasonal wetlands and railroad tracks, periphery of salt marshes (2008), although all but one of the nearby occurrences is thought to be extirpated. This population is located in Albrae, along the railroad tracks, approximately 1 mi southwest of the Fremont Raceways, west of Fremont. In addition, this species is present at the Pacific Commons Preserve southeast of Auto Mall Parkway in Fremont.

Suitable habitat for alkali milk-vetch is present on the Project site, primarily along the periphery of the pickleweed salt marsh, on levees near seasonally wet areas, and in the ruderal grasslands with seasonal depressional wetland habitats. Due to the proximity of known populations of the species, and the presence of potentially suitable habitat on the site, protocol-level surveys for alkali milk-vetch were conducted on 27 March and 3 April 2007 by A. Breen, Ph.D. and K. Hardwicke, Ph.D., qualified botanists. These surveys were conducted within all suitable habitats except for the interior of the flooded pickleweed wetlands. These latter areas were avoided to avoid impacts to salt marsh harvest mouse habitat and because these areas were so saturated as to be impassable on foot, although portions of these pickleweed marshes were surveyed from the wooden PG&E tower maintenance walkways that bisect the marsh. In addition, reconnaissance-level surveys were conducted in association with the wetland delineation, with no fewer than 50 separate site visits throughout 2005-2007.

Alkali milk-vetch was not detected anywhere on the site during these surveys, and the portions of the diked salt marsh that were unsurveyed will not be directly impacted by this Project. Likewise, these surveys did not find its commonly associated species such as stalked popcornflower (*Plagiobothrys stipitatus* var. *micranthus*), Jepson's button celery (*Eryngium aristulatum* var. *aristulaum*), or slender woolly-marbles (*Psilocarphus tenellus*). From our experience with the species in other locations, alkali milk-vetch is likely absent from the entire site. We have determined that alkali milk-vetch is absent from all of the direct impact areas on the Project site, and further surveys are not warranted for the purposes of this impact assessment.

**Brittlescale (*Atriplex depressa*).** **Federal Listing Status: None; State Listing Status: None; CNPS List 1B.2.** Brittlescale is an annual herb in the chenopod family (Chenopodiaceae) that is documented from 30 USGS 7.5-minute quadrangles in Alameda, Contra Costa, Colusa, Fresno, Glenn, Merced, Solano, Stanislaus, Tulare, and Yolo counties at elevations of 3 to 1050 ft. It

occurs in alkaline, clay soils within chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pool habitats and blooms from April to October. It is threatened by development, grazing, and trampling (CNPS 2008). There is one extant populations listed in the CNDDDB (2008) that occurs within the Warm Springs unit of the SFBNWR, southeast of Albrae growing in eroded areas where soil salt is concentrated in the surface soil layer with less than 1% vegetation, including inkweed (*Suaeda moquinii*) and common tarplant.

Suitable habitat is present on the Project site, primarily near seasonal depression wetland habitats. Due to the proximity of known populations of the species, and the presence of potentially suitable habitat on the site, protocol-level surveys for brittlescale were conducted on 27 March, 3 April, and 26-27 July 2007 by A. Breen, Ph.D. and K. Hardwicke, Ph.D., qualified botanists. These surveys were conducted within all suitable habitats except for the interior of the flooded pickleweed wetlands. These latter areas were avoided to avoid impacts to salt marsh harvest mouse habitat and because these areas were so saturated as to be impassable on foot, although portions of these pickleweed marshes were surveyed from the wooden PG&E tower maintenance walkways that bisect the marsh. In addition, reconnaissance-level surveys were conducted in association with the wetland delineation, with no fewer than 50 separate site visits throughout 2005-2007.

Brittlescale was not detected anywhere on the site during these surveys, and the portions of the diked salt marsh that were unsurveyed will not be directly impacted by this Project. From our experience with the species in other locations, brittlescale is likely absent from the entire site. We have determined that brittlescale is absent from all of the direct impact areas on the Project site, and further surveys are not warranted for the purposes of this impact assessment.

**San Joaquin spearscale (*Atriplex joaquiniana*). Federal Listing Status: None; State Listing Status: None; CNPS List 1B.2.** San Joaquin spearscale is an annual herb in the chenopod family (Chenopodiaceae) and is found at a wide range of elevations in alkaline soils in chenopod scrublands, meadows and seeps, playas, and valley and foothill grasslands. It has a highly variable blooming period, with potential to bloom from April to October. The range of this species has been reduced to remaining alkaline grasslands in Alameda, Contra Costa, Colusa, Fresno, Glenn, Merced, Monterey, Napa, San Benito, Solano, and Yolo counties, and is presumed to be extirpated from its historical range in Santa Clara, San Joaquin, and Tulare counties (CNPS 2008). The CNDDDB (2008) reports only two nearby occurrences, both located in the Milpitas USGS 7.5-minute quadrangle. One is located within the Pacific Commons Preserve southeast of Auto Mall Parkway in Fremont. The other was mapped within the vicinity of the Warm Springs unit of the Refuge. Both populations apparently occur at the upper edges of vernal pools (CNDDDB 2008).

Suitable habitat is present on the Project site, primarily along the periphery of the pickleweed salt marsh and in the ruderal grassland habitat near seasonal depression wetland habitats. Due to the proximity of known populations of the species, and the presence of potentially suitable habitat on the site, protocol-level surveys for San Joaquin spearscale were conducted on 27 March, 3 April, and 26-27 July 2007 by A. Breen, Ph.D. and K. Hardwicke, Ph.D., qualified botanists. These surveys were conducted within all suitable habitats except for the interior of the flooded pickleweed wetlands. These latter areas were avoided to avoid impacts to salt marsh

harvest mouse habitat and because these areas were so saturated as to be impassable on foot, although portions of these pickleweed marshes were surveyed from the wooden PG&E tower maintenance walkways that bisect the marsh. In addition, reconnaissance-level surveys were conducted in association with the wetland delineation, with no fewer than 50 separate site visits throughout 2005-2007.

San Joaquin spearscale was not detected anywhere on the site during these surveys, and the portions of the diked salt marsh that were unsurveyed will not be directly impacted by this Project. From our experience with the species in other locations, San Joaquin spearscale is likely absent from the entire site. We have determined that San Joaquin spearscale is absent from all of the direct impact areas on the Project site, and further surveys are not warranted for the purposes of this impact assessment.

**Congdon's Tarplant (*Centromadia parryi* ssp. *congdonii*).** **Federal Listing Status: None; State Listing Status: None; CNPS List 1B.2.** This annual herb from the sunflower family (Asteraceae) occurs in valley and foothill grassland, particularly those with alkaline substrates, and in sumps or disturbed areas where water collects. The blooming period extends from June through November. The range of this species has been reduced to remaining alkaline grasslands in Alameda, Contra Costa, San Mateo, Monterey, San Luis Obispo, and Santa Clara counties, and is presumed to be extirpated from its historical range in Solano and Santa Cruz counties (CNPS 2008). The CNDDDB (2008) reports several occurrences in the Niles, Milpitas, Mountain View, and Newark 7.5-minute quadrangles found in very similar habitats to those on the site (e.g., ruderal grassland with seasonal wetlands, constructed levees, and "marsh-salt pond complexes west of Newark" (CNDDDB 2008). These are located within the Warm Springs District, west of Interstate 880 at Cushing Parkway in Fremont; in Sunnyvale Baylands Park northeast of the junction of Highway 237 and the Lawrence Expressway in Sunnyvale; south of the Irvington District near the junction of Fremont Boulevard and Auto Mall Parkway in Fremont; in Alviso north of Highway 237 and east of North 1<sup>st</sup> Street west of Milpitas in a field bounded by Grand Avenue, Wilson Way, Nortech Parkway, and Disk Drive; on the east side of Stevens Creek in Mountain View, near the mouth of the creek; along the railroad tracks west of Willow Road between Thornton Avenue and Wells Avenue in Newark; and in an unknown location in the marsh/salt pond complexes west of Newark. This species is fairly common in portions of the Pacific Commons Preserve southeast of Auto Mall Parkway in Fremont (WRA 2006).

Suitable habitat is present on the Project site, primarily within the salt marsh periphery, levees, and in the ruderal grassland habitat near seasonal depression wetland habitats. Due to the proximity of known populations of the species, and the presence of potentially suitable habitat on the site, protocol-level surveys for Congdon's tarplant were conducted on 27 March, 3 April, and 26-27 July 2007 by A. Breen, Ph.D. and K. Hardwicke, Ph.D., qualified botanists. These surveys were conducted within all suitable habitats except for the interior of the flooded pickleweed wetlands. These latter areas were avoided to avoid impacts to salt marsh harvest mouse habitat and because these areas were so saturated as to be impassable on foot, although portions of these pickleweed marshes were surveyed from the wooden PG&E tower maintenance walkways that bisect the marsh. In addition, reconnaissance-level surveys were conducted in

association with the wetland delineation, with no fewer than 50 separate site visits throughout 2005-2007.

Congdon's tarplant was not detected anywhere on the site during these surveys, and the portions of the diked salt marsh that were unsurveyed will not be directly impacted by this Project. Only the common tarplant (tarweed) was observed. These surveys did find some of the species commonly associated with Congdon's tarplant, such as Italian ryegrass, saltgrass, pickleweed, alkali heath, and rabbitsfoot grass. From our experience with the species in other locations, Congdon's tarplant is likely absent from the entire site. We have determined that Congdon's tarplant is absent from all of the direct impact areas on the Project site, and further surveys are not warranted for the purposes of this impact assessment.

**Hoover's button-celery (*Eryngium aristulatum* var. *hooveri*). Federal Listing Status: None; State Listing Status: None; CNPS List 1B.1.** Hoover's button-celery is an annual or perennial herb in the carrot family (Apiaceae) that is documented from nine USGS 7.5-minute quadrangles in Alameda, San Benito, San Diego, and San Luis Obispo counties. It is considered to be extirpated from Santa Clara County. It occurs in vernal pool habitat at elevations of 10 to 148 ft and blooms in July. Almost all of the collections of the species are old. Many historical occurrences were extirpated by agriculture, urbanization, and overgrazing (CNPS 2008). There is one extant occurrence of the species listed in the CNDDDB (2008). One occurs near the Sky Sailing Airport, approximately 0.4 mi west of Interstate 880, west of Fremont. Associated species include alkali milk-vetch, Contra Costa goldfields, San Joaquin spearscale, Congdon's tarplant, flatface downingia (*Downingia pulchella*), slender woolly marbles (*Psilocarphus tenellus*), and stalked popcornflower (*Plagiobothrys stipitatus*), among others.

Suitable habitat is present on the Project site in a degraded state near seasonal depression wetland habitats. Due to the proximity of known populations of the species, and the presence of potentially suitable habitat on the site, protocol-level surveys for Hoover's button-celery were conducted on 27 March, 3 April, and 26-27 July 2007 by A. Breen, Ph.D. and K. Hardwicke, Ph.D., qualified botanists. These surveys were conducted within all suitable habitats except for the interior of the flooded pickleweed wetlands. These latter areas were avoided to avoid impacts to salt marsh harvest mouse habitat and because these areas were so saturated as to be impassable on foot, although portions of these pickleweed marshes were surveyed from the wooden PG&E tower maintenance walkways that bisect the marsh. In addition, reconnaissance-level surveys were conducted in association with the wetland delineation, with no fewer than 50 separate site visits throughout 2005-2007.

Hoover's button-celery was not detected anywhere on the site during these surveys, and the portions of the diked salt marsh that were unsurveyed will not be directly impacted by this Project. None of its commonly associated species were observed within the Project site. From our experience with the species in other locations, Hoover's button-celery is likely absent from the entire site. We have determined that Hoover's button-celery is absent from all of the direct impact areas on the Project site, and further surveys are not warranted for the purposes of this impact assessment.

**Prostrate vernal pool navarretia (*Navarretia prostrata*).** **Federal Listing Status: None; State Listing Status: None; CNPS List 1B.1.** Prostrate vernal pool navarretia is an annual herb in the phlox family (Polemoniaceae) and occurs in mesic coastal scrub, meadows and seeps, vernal pools, and alkaline valley and foothill grassland habitats at elevations of 49 to 2297 ft. It is documented from 27 USGS 7.5-minute quadrangles from Alameda, Los Angeles, Merced, Monterey, Orange, Riverside, San Benito, San Diego, and San Luis Obispo counties. Prostrate vernal pool Navarretia is considered to be extirpated from San Bernardino County. It blooms from April to July (CNPS 2008). There are two records of the species within the CNDDDB (2008). One is located within the Pacific Commons preserve north of Albrae along the railroad tracks in seasonal wetland habitat with alkali milk-vetch, Contra Costa goldfields, San Joaquin spearscale, Congdon's tarplant, flatface downingia, slender woolly marbles, and stalked popcornflower. The other is located in the Pacific Commons preserve near the Sky Sailing Airport. WRA (2006) has been monitoring special-status plants at the Pacific Commons Preserve annually since 1999. Prostrate navarretia was apparently not observed on the site until 2004, when 32,000 plants were estimated. Only 29 plants were detected in 2006, but they were present around multiple vernal pools that year. It is unknown whether they were recorded on the Stevenson unit of the Preserve prior to 2006, but in 2006 they apparently were not recorded there.

Suitable habitat is present on the Project site, primarily within the salt marsh periphery, levees, and in the ruderal grassland habitat near seasonal depression wetland habitats. Due to the proximity of known populations of the species, and the presence of potentially suitable habitat on the site, protocol-level surveys for prostrate vernal pool navarretia were conducted on 27 March, 3 April, and 26-27 July 2007 by A. Breen, Ph.D. and K. Hardwicke, Ph.D., qualified botanists. These surveys were conducted within all suitable habitats except for the interior of the flooded pickleweed wetlands. These latter areas were avoided to avoid impacts to salt marsh harvest mouse habitat and because these areas were so saturated as to be impassable on foot, although portions of these pickleweed marshes were surveyed from the wooden PG&E tower maintenance walkways that bisect the marsh. In addition, reconnaissance-level surveys were conducted in association with the wetland delineation, with no fewer than 50 separate site visits throughout 2005-2007.

Prostrate vernal pool navarretia was not detected anywhere on the site during these surveys, and the portions of the diked salt marsh that were unsurveyed will not be directly impacted by this Project. None of its commonly associated species were observed within the Project site. From our experience with the species in other locations, prostrate vernal pool navarretia is likely absent from the entire site. We have determined that prostrate vernal pool navarretia is absent from all of the direct impact areas on the Project site, and further surveys are not warranted for the purposes of this impact assessment.

**Delta woolly-marbles (*Psilocarphus brevissimus* var. *multiflorus*).** **Federal Listing Status: None; State Listing Status: None; CNPS List 4.2.** Delta woolly-marbles is an annual herb in the sunflower family (Asteraceae) and occurs in vernal pools and flats at elevations of 33-1640 ft. It is an annual herb that blooms from May to June. The range of this species has been reduced to remaining vernal pools and suitably mesic flats in Alameda, Napa, Santa Clara, San Diego, San Joaquin, Solano, Stanislaus, and Yolo counties. As this species is on CNPS list 4, it

is only considered to have a limited distribution, and USGS 7.5-minute quadrangle-level data for this species are not compiled by either CNPS or CNDDDB. As a result, specific locations for this species in the Project vicinity are not known.

At least marginally suitable habitat exists for Delta woolly-marbles in the seasonally wet flats and depressions on the site. Due to the proximity of known populations of the species, and the presence of potentially suitable habitat on the site, protocol-level surveys for Delta woolly-marbles were conducted on 27 March and 3 April 2007 by A. Breen, Ph.D. and K. Hardwicke, Ph.D., qualified botanists. These surveys were conducted within all suitable habitats except for the interior of the flooded pickleweed wetlands. These latter areas were avoided to avoid impacts to salt marsh harvest mouse habitat and because these areas were so saturated as to be impassable on foot, although portions of these pickleweed marshes were surveyed from the wooden PG&E tower maintenance walkways that bisect the marsh. In addition, reconnaissance-level surveys were conducted in association with the wetland delineation, with no fewer than 50 separate site visits throughout 2005-2007.

Delta woolly-marbles was not detected anywhere on the site during these surveys, and the portions of the diked salt marsh that were unsurveyed will not be directly impacted by this Project. Likewise, these surveys did not find its commonly associated vernal pool species. From our experience with the species in other locations, Delta woolly-marbles is likely absent from the entire site. We have determined that Delta woolly-marbles is absent from all of the direct impact areas on the Project site, and further surveys are not warranted for the purposes of this impact assessment.

### **Special-status Animal Species**

H. T. Harvey & Associates biologists have conducted a number of wildlife surveys at the Project site. Reconnaissance-level field surveys were conducted on Area 4 in April and May 2001 and on a number of dates throughout the year in 2006, 2007, and 2008. In addition, a number of surveys for specific wildlife species have been performed by H. T. Harvey & Associates and others on the Project site since the 1990s. Specific dates and details of these surveys are described in the detailed accounts for those species below.

In preparing for this evaluation, prior to commencing site visits, and periodically thereafter to check for updated records, the California Natural Diversity Database (CNDDDB 2008) was queried for information on the local distribution of special-status species. We also consulted USGS topographic maps and aerial photographs of the area prior to site visits to locate habitat features on or near the site that could potentially support certain wildlife species.

The legal status and potential for occurrence of special-status wildlife species known to occur or potentially occurring in the general vicinity of the Project site are given in Table 4, and known CNDDDB occurrences for special-status wildlife are shown in Figure 5b. Expanded descriptions are included below for those species known to occur on the Project site, for which potentially suitable habitat occurs on or in the general vicinity of the Project site and for which the site is accessible to animals from known populations, and for species for which resource agencies have expressed particular concern and for which more expanded discussion is required.

Several species that are known to occur in the region are absent from the Project site. The Project site is outside the known range of, lacks suitable habitat for, or is inaccessible to several special-status species that occur elsewhere in the Newark area. These species include California red-legged frog (*Rana draytonii*), western pond turtle (*Emys marmorata*), California brown pelican (*Pelecanus occidentalis californicus*), willow flycatcher (*Empidonax traillii*), yellow-breasted chat (*Icteria virens*), and American badger (*Taxidea taxus*). No species of listed fairy shrimp have ever been recorded in the South San Francisco Bay area, and thus none are expected to occur on the site. None were observed during wet-season surveys for vernal pool tadpole shrimp conducted by Helm Biological Consulting in 2006-2007 or 2007-2008. During dry-season sampling, Helm found cysts of an unidentified fairy shrimp in a portion of the southern part of Area 4 that did not pond at all in 2007-2008 or 2008-2009. Efforts to hatch the cysts have been unsuccessful, but the species involved is likely either the versatile fairy shrimp (*Branchinecta lindahli*) or alkali fairy shrimp (*B. mackini*) (B. Helm, pers. comm.).

Some special-status species may occur on the Project site only as uncommon to rare visitors, migrants, or transients, or may forage on the site in low numbers while breeding in adjacent areas. However, these species are not expected to breed on the site, or to be substantially affected by the proposed Project. These species include the California least tern (*Sterna antillarum browni*), bank swallow (*Riparia riparia*), western snowy plover (*Charadrius alexandrinus nivosus*), golden eagle (*Aquila chrysaetos*), western red bat (*Lasiurus blossevillii*), and Townsend's big-eared bat (*Corynorhinus townsendii*). The American white pelican (*Pelecanus erythrorhynchos*), black tern (*Chlidonias niger*), Vaux's swift (*Chaetura vauxi*), California yellow warbler (*Dendroica petechia brewsteri*), and grasshopper sparrow (*Ammodramus savannarum*) may also occur as nonbreeding foragers irregularly and/or in low numbers; these species are considered California species of special concern only when nesting.

Special-status animals that are discussed in greater detail below include the following:

- Species for which potential breeding habitat is present on-site, including the vernal pool tadpole shrimp, California tiger salamander, northern harrier, white-tailed kite, peregrine falcon (*Falco peregrinus*), burrowing owl, loggerhead shrike (*Lanius ludovicianus*), Alameda song sparrow (*Melospiza melodia pusillula*), Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*), San Francisco common yellowthroat, tricolored blackbird (*Agelaius tricolor*), pallid bat (*Antrozous pallidus*), salt marsh wandering shrew, and salt marsh harvest mouse.
- Species that are absent from the site but which could potentially occur in Mowry Slough downstream from the site, and for which indirect effects must be assessed. These include the green sturgeon (*Acipenser medirostris*), fall-run Chinook salmon (*Oncorhynchus tshawytscha*), Central California Coast steelhead (*Oncorhynchus mykiss*), longfin smelt (*Spirinchus thaleichthys*), California clapper rail (*Rallus longirostris obsoletus*), California black rail (*Laterallus jamaicensis coturniculus*), and Pacific harbor seal (*Phoca vitulina*).

## **Federal or State Endangered, Threatened, and Proposed/Candidate Species**

**Vernal Pool Tadpole Shrimp (*Lepidurus packardii*). Federal Listing Status: Endangered; State Listing Status: None.** The vernal pool tadpole shrimp is a member of the aquatic crustacean order Notostraca. Adults possess 35 pairs of legs and two long cercopods, and may reach a length of two inches. Tadpole shrimp eat microscopic organisms, detritus, dead tadpoles, earthworms, frog eggs and mollusks. Females deposit eggs on vegetation on the pool bottom. Pools containing vernal pool tadpole shrimp have clear to highly turbid water and range in size from less than 1 ac to 90 ac. These pools may be highly turbid and mud-bottomed or grass-bottomed in old alluvial soils underlain by hardpan. Pools generally have low conductivity, low total dissolved solids and low alkalinity (Eng et al. 1990). Tadpole shrimp are demersal (i.e., they are generally benthic, but are capable of swimming), and they burrow in soft sediments. The periodic flooding that formerly allowed vernal pool species to disperse became rare due to the construction of dams, drainage canals and other barriers that diminished periodic flooding. However, vernal pool tadpole shrimp eggs can pass through bird digestive tracts and may be dispersed by birds. Vernal pool tadpole shrimp occur primarily in the Central Valley and range from east of Redding in Shasta County south to the San Luis National Wildlife Refuge in Merced County (USFWS 1994). Outside of the Central Valley, vernal pool tadpole shrimp are known to occur only in the Warm Springs unit of the Don Edwards San Francisco Bay National Wildlife Refuge (“Refuge”) and nearby portions of the Pacific Commons Preserve in Fremont, (Caires et al. 1993).

Mitigation for the Pacific Commons project included the creation of habitat for vernal pool tadpole shrimp and California tiger salamanders in the area east of Stevenson Boulevard and north of the Southern Pacific railroad tracks, immediately east of the southeastern corner of Area 3 and north of the southeastern corner of Area 4 (Wetland Research Associates [WRA] 2006). A total of 29 pools here were inoculated in 2003 with vernal pool tadpole shrimp cysts. Ongoing monitoring at these sites documented vernal pool tadpole shrimp in only two pools in 2006 (WRA 2006) and in four of the 14 pools sampled in 2007 (Meg Marriott, pers. comm.). The Newark Areas 3 and 4 Project will not affect hydrology or water quality in the pools on the adjacent mitigation site, and thus will not affect tadpole shrimp in those pools.

Habitat assessment surveys for vernal pool tadpole shrimp were conducted by R. White, Ph.D. in February and March 1998 in the area that has now been developed for the campus industrial park (Figure 4) in Area 3 (H. T. Harvey & Associates 1998). The area surveyed was defined by Stevenson Boulevard on the east, the ACFCWCD Line D to the west, the Southern Pacific railroad tracks to the southwest and Eureka Drive to the north. These surveys concluded that no tadpole shrimp were present on the campus industrial park site. A habitat assessment for vernal pool tadpole shrimp was conducted by R. Arnold, Ph.D. (2006) on the O’Connor parcel, the ruderal herbaceous field/coastal scrub/seasonal wetland complex southwest of the Southern Pacific railroad tracks and north of the farm buildings on Area 4, on 2 February 2006. This assessment determined that none of the wetland habitats on the O’Connor parcel appeared to be suitable to support the vernal pool tadpole shrimp.

Due to the presence of potential habitat in Area 4 and adjacent portions of Area 3 (no suitable habitat is present on the portion of Area 3 proposed to be developed by this Project) and the

proximity of the site to the pools that had been inoculated with tadpole shrimp on the Stevenson unit of the Pacific Commons Preserve, Helm Biological Consulting conducted protocol-level (USFWS 1996) wet-season surveys for large branchiopods in all suitable habitat in Areas 3 and 4 in 2006-2007 and 2007-2008 (Helm Biological Consulting 2008). These surveys covered all potential habitats on the Project site. Because precipitation in 2006-2007 was less than 70% of the long-term average, wet-season surveys were conducted again in 2007-2008. Rainfall during 2007-2008 was approximately 75% of average, but this was adequate for tadpole shrimp to emerge and be detectable at other sites in the region. For example, in pools on the Warm Springs unit of the Refuge, surveys detected no tadpole shrimp in 2007, but in 2008 tadpole shrimp were detected in six pools, the highest number since 1999 (Meg Marriott, pers. comm.). As a result, the USFWS determined that rainfall was adequate for the completion of valid wet-season surveys in 2007-2008 (James Browning, pers. comm.).

The results of both wet-season surveys were negative, and dry-season surveys did not detect any evidence of vernal pool tadpole shrimp within the Project area. Despite the extent of seasonal wetland habitat on the Project site, the Project site is unsuitable for the tadpole shrimp either because wetlands do not pond water (i.e., they are saturated but not inundated) and/or they are too saline for the species. Areas with perennial water are unsuitable since the species' life cycle cannot be completed under conditions of perennial inundation. The areas with the greatest potential for tadpole shrimp are in the southeastern portion of Area 4, including a pool that lies primarily outside the Project area along the railroad tracks. No tadpole shrimp or other branchiopods were detected in this pool, either during wet-season or dry-season surveys. Based on the negative survey results, and the unsuitable conditions for listed vernal pool branchiopods, the vernal pool tadpole shrimp has been determined to be absent from the Project site.

**Green Sturgeon (*Acipenser medirostris*). Federal Listing Status: Threatened; State Listing Status: Species of Special Concern.** On 7 April 2006, the National Marine Fisheries Service (NMFS) published a final rule listing the southern Distinct Population Segment (DPS) of the green sturgeon as threatened (NMFS 2006), which took effect on 6 June 2006. Critical Habitat for the southern DPS was proposed on 8 September 2008 (NMFS 2008). San Francisco Bay, including estuarine areas associated with the Bay, is proposed for critical habitat designation. Mowry Slough has the potential to be designated as critical habitat.

The green sturgeon ranges from Ensenada, Mexico to the Bering Sea in marine waters, and commonly occurs in coastal waters from San Francisco Bay to Canada. Green sturgeon adults and juveniles occur throughout the upper Sacramento River, and within the southern DPS, spawning occurs predominantly (or solely) in the upper Sacramento River (Adams et al. 2007). Green sturgeon are believed to spend the majority of their lives in nearshore oceanic waters, bays, and estuaries. In summer and fall, green sturgeon commonly occur in estuaries where there has been no known spawning activity and where there are no records of their occurrence farther up the river system (Adams et al. 2007), suggesting that the species may wander widely in accessible estuarine habitat.

Little is known about green sturgeon in South San Francisco Bay. Although the species may forage in the South Bay, we are aware of no definitive records here, and green sturgeon are likely rare in the South Bay. If they occur in lower Mowry Slough, they are not expected to

swim upstream as far as the Project area because there is no spawning habitat to migrate to within or upstream of the Project site, the water quality in this portion of the Slough is likely relatively poor, and the Mowry Slough channel in the Project area is narrow and shallow. The green sturgeon is not expected to occur on the site itself.

**Longfin Smelt (*Spirinchus thaleichthys*). Federal Listing Status: Proposed Endangered Status; State Listing Status: Candidate Endangered.** Longfin smelt occurring in the San Francisco Bay represent the southernmost population of this species that is found in patchy distribution to as far north as Prince William Sound, Alaska. The longfin smelt was declared a Candidate for listing under CESA in February 2008 (California Fish and Game Commission 2008) and has been petitioned for listing as endangered under FESA, a petition currently under consideration by the USFWS (USFWS 2008b).

Longfin smelt spawn in fresh water in the upper end of the San Francisco Bay and in the Sacramento-San Joaquin Delta, occurring in the South Bay year-round as pre-spawning adults and yearling juveniles (Wernette 2000). Longfin smelt are most abundant in Suisun and San Pablo Bays where salinity generally ranges from 2 to 20 parts per thousand, when not spawning. Longfin smelt have been collected in the South Bay, including Alviso Slough (EDAW 2007). Spawning habitat and suitable spawning substrate occurs in the lower reaches of the Guadalupe River. The decline in longfin smelt numbers in the Bay is associated with the diversions of freshwater from the Delta. Sufficient winter flows are critical for the health of the longfin smelt population; high outflows increase dispersion downstream, available habitat, and possibly food availability (Wang 1986). Distribution of longfin smelt in Mowry Slough is unknown, but potential presence of the species cannot be eliminated. However, if this species occurs in Mowry Slough, it is expected to occur in the reach adjacent to the site rarely, if at all, for the reasons listed above for the green sturgeon. Longfin smelt are not expected to occur on the Project site itself.

**Steelhead (*Oncorhynchus mykiss*), Central California Coast ESU. 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 and other salmonids have been categorized into subpopulations, or Distinct Population Segments (DPSs). In 1998, NMFS published a final rule to list the Central California Coast DPS of the steelhead as threatened under the FESA (NMFS 1998). The Central California Coast DPS includes all runs from the Russian River in Sonoma County south to Aptos Creek in Santa Cruz County, including all steelhead spawning in streams flowing into San Francisco Bay streams. In 2004, NMFS (2005) proposed critical habitat for this and other DPS s as accessible reaches of all rivers within the range of each listed DPS, and this final designation became effective January 2006. No critical habitat is present on the Project site, and the adjacent Mowry Slough is not part of the designated critical habitat for the species (Calfish 2008) because no spawning streams are present upstream from the slough.

Steelhead are known to occur in several stream systems in the South San Francisco Bay Area, and this species could potentially spawn in virtually any reach of a stream offering suitable spawning habitat and lacking downstream barriers to dispersal. Information on the fine-scale distribution of steelhead in South San Francisco Bay streams is limited, but steelhead are

currently known to run in the Coyote Creek, Guadalupe River, Stevens Creek, and San Francisquito Creek watersheds (Foxgrover et al. 2004). In addition, ongoing restoration activities in Alameda Creek may lead to a viable spawning population there. Currently, very low numbers of adult steelhead migrate up Alameda Creek annually (Leidy et al. 2003).

Suitable spawning habitat does not occur within the Project area, but this species migrates through the Bay past Mowry Slough while moving between the ocean and spawning areas in Coyote Creek and the Guadalupe River (and some of their tributaries). Steelhead in some coastal estuaries in central California apparently make extensive use of estuarine habitats for foraging, although the extent of the use of estuarine habitats by steelhead in many areas, including the South San Francisco Bay area, is virtually unknown. It is possible that small numbers of steelhead forage in Mowry Slough, but because no spawning habitat is present in tributaries to Mowry Slough, there is a very low probability of occurrence upstream as far as the Project site, and steelhead are not expected to occur on the site itself.

**California Tiger Salamander (*Ambystoma californiense*). Federal Listing Status: Threatened; State Listing Status: Species of Special Concern.** The California tiger salamander's preferred breeding habitat includes temporary, ponded environments (minimum of three to four months; e.g., vernal pool, ephemeral pool, or human-made ponds) surrounded by uplands that support small mammal burrows. The species will utilize permanent ponds provided that aquatic, vertebrate predators are not present. Such ponds provide breeding and larval habitat, while small mammal burrows (e.g., California ground squirrel and Botta's pocket gopher [*Thomomys bottae*]) in the upland habitats support juvenile and adult salamanders during the dry season.

Adults often emerge from the burrows at night during the first moderate to heavy winter rains and migrate to breeding ponds where they lay their eggs. The eggs are attached singly or in small clumps to vegetation under water, or directly on the bottom of the pool if emergent vegetation is lacking. The eggs hatch approximately one week after they are deposited. The larvae prey upon invertebrates and other amphibian larvae for between three and six months, during which time they metamorphose into juveniles. Juveniles typically leave the pools in mass during a one- to two-week period, usually as the ponds dry. The juveniles then search for available burrows. Juveniles feed and grow in these burrows until the following winter. California tiger salamanders take several years to reach maturity and do not necessarily breed every year, even if sufficient habitat is available.

The range of the California tiger salamander is restricted to the Central Valley and the South Coast Range of California from Butte County south to Santa Barbara County. Tiger salamanders have disappeared from a significant portion of their range due to habitat loss from agriculture and urbanization and the introduction of non-native aquatic predators.

The CNDDDB (2008) does not list any records of tiger salamanders from the Project site. Tiger salamanders have been recorded in the Warm Springs unit of the Refuge, with the nearest known occurrence being approximately 0.8 mi southeast of the southeastern corner of Area 4, and 1.2 mi from the Project's closest proposed impact areas. Although the vernal pools constructed on

the Stevenson unit of the Pacific Commons Preserve mitigation site provide suitable conditions for this species, surveys to date have not detected the species there.

Tiger salamanders are known to disperse up to 1 mi or more from aquatic breeding sites to upland refugia sites, and thus the Project site is within dispersal distance of breeding sites to the southeast. The railroad tracks would likely inhibit dispersal between known breeding sites and the Project site to some extent, but there are no insurmountable barriers to such dispersal. It is therefore possible for a California tiger salamander to reach the Project area.

Given that it is possible for California tiger salamanders to reach the Project area, habitat assessment surveys for potential upland and aquatic breeding habitat for California tiger salamanders have been conducted on the Project site. On 7 February 1998, a habitat assessment survey was conducted by M. Jennings, Ph.D. in the area that has now been developed for the campus industrial park (H. T. Harvey & Associates 1998), west of Stevenson Boulevard, south of Eureka Street, east of ACFCC Line D and north of the Southern Pacific railroad tracks (Figure 4). At the time, this area was nearly entirely cultivated, and it was determined that the campus industrial park site did not constitute suitable habitat for California tiger salamanders. On 2 February 2006, a habitat assessment survey was conducted by J. Wilkinson, Ph.D. on the O'Connor parcel (H. T. Harvey & Associates 2006b). That assessment concluded that the O'Connor parcel contained potential upland aestivation and dispersal habitat for California tiger salamanders, if tiger salamanders bred close enough to use the habitat on this site. Current survey efforts for this document included an additional habitat assessment survey conducted by J. Wilkinson, Ph.D. for the undeveloped portions of Areas 3 and 4 in August 2006, a habitat assessment and protocol-level larval survey conducted by Biosearch Associates during spring 2007, and a habitat assessment and protocol-level larval survey conducted by G. Dayton, Ph.D. and S. Carpenter, B.S. in spring 2008.

Despite the extent of seasonal wetland habitat on the Project site, most areas are unsuitable for breeding by California tiger salamanders because they do not pond water long enough for successful reproduction and/or they are too saline for the species. Within Areas 3 and 4, potential tiger salamander breeding habitat is limited to two locations: the mitigation wetland in the southeastern corner of Area 3 and a pool that lies primarily outside the Project area along the railroad tracks in the southeastern corner of Area 4. Larval surveys were conducted according to the USFWS/CDFG (2003) protocol in all potentially suitable breeding habitat on Areas 3 and 4 in March, April, and May 2007 by Biosearch Associates (2007) and in March, April, and May 2008 by G. Dayton, Ph.D. and S. Carpenter, B.S. These surveys detected no tiger salamanders.

Frequent, ongoing disturbance of upland and seasonal wetland habitat by disking and planting for agricultural purposes limits the suitability of upland and seasonal wetland habitat on the site for the tiger salamander. California tiger salamanders are not known to breed lower than 10 ft above sea level (Shaffer and Fisher 1991), and the salinity of most perennial pools in Area 4 is likely too high for this species. Anderson et al. (1971) suggested that salt marshes can act as barriers to tiger salamanders and brackish water, such as that found in San Francisco Bay salt marshes, is probably too saline for this species.

It is possible that an occasional California tiger salamander dispersing from known breeding sites to the southeast could reach Area 4, though no dispersants are expected to be able to reach the portion of Area 3 proposed for development by this Project. However, based on the negative results of larval surveys on the Project site, and more importantly the negative results of larval surveys in higher-quality vernal pools on the adjacent Pacific Commons Preserve, it does not appear that there any breeding tiger salamanders on or immediately adjacent to the site. Due to the heavily cultivated nature of the fields on the site, upland habitat for the tiger salamander is restricted to ruderal field edges with small mammal burrows, if tiger salamanders were to occur on the site. In combination, the long distance between the Project's impact areas and the nearest known occurrence of the species, the negative results of fairly intensive larval surveys in potential breeding habitat on and adjacent to the site, and the limited extent of suitable upland habitat for the species on the site indicate that there is a low probability of tiger salamander occurrence in the Project area.

**American Peregrine Falcon (*Falco peregrinus anatum*).** **Federal Listing Status: Delisted; State Listing Status: Endangered (Proposed Candidate for Delisting), Fully Protected.** The American peregrine falcon occurs throughout much of the world, and is known as one of the fastest flying birds of prey. Peregrine falcons prey almost entirely on birds, which they kill while in flight. These falcons nest on ledges and caves on steep cliffs, as well as human-made structures such as buildings, bridge, and electrical transmission towers. In California, they are known to nest along the entire coastline, the northern Coast, and the Cascade Ranges and Sierra Nevada. Peregrine falcons are most likely to be encountered in coastal or inland marsh habitats where large numbers of waterfowl and shorebirds concentrate, as occurs in portions of Area 4 on the Project site.

A severe decline in populations of the widespread North American subspecies *Falco peregrinus anatum* began in the late 1940s. This decline was attributed the accumulation of DDE, a metabolite of the organochlorine pesticide DDT, in aquatic food chains (Thelander 1994). When concentrated in the bodies of predatory birds such as the peregrine falcon, bald eagle, brown pelican, and osprey, this contaminant led to reproductive effects, such as the thinning of eggshells. The American peregrine falcon was listed as Endangered by the USFWS in 1970 (USFWS 1970) and by the State of California in 1971. Recovery efforts included the banning of DDT in North America and captive breeding programs. The USFWS removed the American peregrine falcon from the Endangered Species List in 1999 (USFWS 1999a), and although the State of California still lists the species as endangered, delisting under CESA has also been proposed (California Fish and Game Commission 2007). However, peregrine falcons are a "fully protected" species and receive special protections as raptors under the state Fish and Game Code.

Peregrine falcons are expected to forage on Areas 3 and 4 in low numbers, likely foraging primarily on shorebirds and waterfowl in the western part of Area 4. To date, peregrine falcons have not been recorded nesting on or near the Project site. However, in 2006, a pair nested in a former common raven (*Corvus corax*) nest on an electrical tower in a salt pond in Mountain View. In 2007, 2 nests (both in former common raven or red-tailed hawk nests) were recorded in Mountain View. In 2008, one such nest was recorded in Mountain View, and another was in a former raven nest in Mowry salt ponds southeast of the Project site in Fremont. The only

potential nesting habitat for this species in the immediate vicinity of the Project area is in former common raven or red-tailed hawk nests on electrical towers in Area 4. A red-tailed hawk nest is present on a tower just east of the former Pintail Duck Club, and there is some potential for peregrine falcons to nest in Area 4 in the future. Figure 6 depicts the locations of such towers on and immediately adjacent to Area 4; no suitable nest sites are present in Area 3.

**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. It formerly bred at several other locations, including Humboldt Bay (Humboldt County), Elkhorn Slough (Monterey County), and Morro Bay (San Luis Obispo County), but is now extirpated from all sites outside 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 alterniflora*), pickleweed, and marsh gumplant (*Grindelia stricta*), and containing complex networks of tidal channels (Harvey 1980). Shrubby areas adjacent to or within tidal marshes are important for predator avoidance at high tides.

California clapper rails breed from February through August in the vegetation along tidal sloughs. Breeding generally occurs in two pulses, one in April and May, and a second in June and July. California clapper rails lay up to 14 eggs, which are incubated by both parents for just under a month. The young are precocial, but are dependent on their parents for food for five to six weeks (Eddleman and Conway 1998). California clapper rails are non-migratory, although juveniles disperse around the Bay during late summer and autumn. Adults are territorial, and maintain territories throughout the year. Most California clapper rails studied via radio-telemetry had home ranges of about 375 ft in radius (Keldsen 1997). They forage on crabs, clams, and other invertebrates, which they find in exposed mud along tidal channels (usually secondary channels) or in vegetation at the edges of such channels (Shuford 1993).

Since the mid-1800s, about 90% of San Francisco Bay's marshlands have been eliminated through filling, diking, or conversion to salt evaporation ponds (Goals Project 1999). As a result, the California clapper rail lost most of its former habitat, and the population declined severely. The subspecies was listed by the USFWS as Endangered in 1970 (USFWS 1970), and by the State of California as Endangered in 1971, and under state Fish and Game Code it a "fully protected" species. The USFWS approved a joint recovery plan of the salt marsh harvest mouse and the California clapper rail in 1984 (USFWS 1984), and an updated Tidal Marsh Species Recovery Plan is currently under development. Critical habitat has not been proposed for the California clapper rail.

Although California clapper rails are typically found in tidal salt marshes, they have also been documented in brackish marshes in the South Bay. Breeding-season surveys conducted in marshes bordering Coyote Creek in 1989 documented breeding California clapper rails in a wide variety of plant associations. Surveys conducted during the 1990 breeding season (H. T. Harvey & Associates 1990a) and winter season (H. T. Harvey & Associates 1990b) found a number of California clapper rails occupying salt/brackish transitional marshes and several brackish, alkali bulrush-dominated marshes, including Warm Springs Marsh (immediately east of Pond A19) and the marshes along upper Coyote Slough even farther east. In addition, California clapper rails

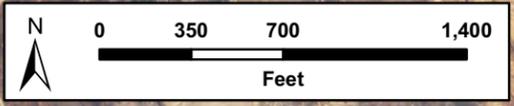
were found in nearly pure stands of alkali bulrush along Guadalupe Slough in 1990 and 1991 (H. T. Harvey & Associates 1990a; H. T. Harvey & Associates 1990b; H. T. Harvey & Associates 1991). Although it has been suggested that habitat quality may be lower in brackish marshes than in salt marshes (Shuford 1993), further studies comparing reproductive success in different marsh types are necessary to determine the value of brackish marshes to California clapper rails.



Imagery Source: 2005 USDA NAIP Aerial

**Legend**

- Area 3 Boundary
- Area 4 Boundary
- Potential Development Envelope
- Potential Salt Marsh Harvest Mouse Habitat
- Potential Tricolored Blackbird Nesting Habitat
- ◆ Structures and Trees with Potential for Roosting Bats
- Electrical Towers (Potential Peregrine Falcon Nest Sites)



**H. T. HARVEY & ASSOCIATES**  
*ECOLOGICAL CONSULTANTS*

Newark Areas 3 & 4 - Specific Plan DEIR Biological Resources  
 Section: Habitat for Selected Special-Status Species

Proj No. 2596-05	Date Feb. 2009	Figure 6
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On rare occasions, California clapper rails have been recorded even further upstream, in brackish/freshwater transition marshes, particularly during the nonbreeding season. In the Alviso/Sunnyvale area, such individuals have been recorded along upper Alviso Slough near the Gold Street bridge (14 February 1997; Scott B. Terrill, pers. obs.), in nontidal freshwater ponds between Calabazas and San Tomas Aquino Creeks north of Highway 237 in Sunnyvale (16 August 1998; Steve Rottenborn, pers. obs.), and along Artesian Slough near the Environmental Education Center in January 1999 and January-February 2001 (Santa Clara County Bird Data Unpublished).

No fully tidal marsh is present within the Project area, and thus no suitable habitat for the California clapper rail is present on-site. Although tidal salt/brackish marsh is present along Mowry Slough southwest of Area 4, clapper rails are unlikely to occur there. The USFWS has conducted winter high-tide surveys for California clapper rails from boats along Mowry Slough since the early 1980s, and on several occasions these surveys have extended from the mouth of the slough all the way up to the vicinity of the pump near the southern edge of Area 4 (USFWS unpublished data). During these surveys, no clapper rails have been observed upstream from the former duck club along Mowry Slough, located approximately 2.4 mi downstream from the site. Therefore, clapper rails are not expected to occur in the reach of Mowry Slough adjacent to the site.

**California Black Rail (*Laterallus jamaicensis coturniculus*). Federal Listing Status: None; State Listing Status: Threatened.** The California black rail is a small rail that inhabits tidal salt, brackish, and freshwater marshes. This small bird is very secretive, and is most often seen during high tides when it is forced into high marshes. California black rails are most abundant in tidal marshes with some freshwater input (Evens et. al. 1991). They nest primarily in pickleweed-dominated marshes with patches or borders of *Scirpus*, often near the mouths of creeks. They build nests in tall grasses or marsh vegetation during spring, and lay about six eggs. Nests are usually constructed of pickleweed, and are placed directly on the ground or slightly above ground in vegetation. Black rails feed on terrestrial insects, aquatic invertebrates, and possibly seeds (Trulio and Evens 2000).

The California black rail reportedly bred in the Alviso area in the early 1900s (Wheelock 1916), but currently it is not known to breed in the South Bay. In the San Francisco Bay area, this small rail currently breeds primarily in marshes in the north San Francisco Bay Area (i.e., San Pablo Bay and Suisun Bay). After breeding, some black rails disperse into the South Bay, accounting for most records of the species in this area. Here, the abundance of the black rail during the nonbreeding season is unknown due to its very small size and highly secretive nature. Most observations of black rails in the South Bay consist of only a few birds observed seeking high-tide refugial cover at the edges of the salt marsh in a few areas during spring tides from November to February (e.g., Palo Alto Baylands, East Palo Alto marshes, and Eden Landing). This species is likely present in small numbers at scattered locations as well (e.g., there are unconfirmed reports from the Alviso marina during high winter tides), but the inaccessibility of most suitable areas to look for black rails during spring tides, and the species' silence in the South Bay during winter, makes it virtually impossible to survey the species during this season.

The absence (or scarcity) of breeding black rails in the South Bay is presumably a result of habitat loss. Tidal marsh habitat has been lost, but perhaps more important to winter survival is loss of high-tide refugia habitat. Upland transition habitat, both on natural levees within marshes and on landward edges of marshes, has been lost as a result of fill for development, and reductions in marsh size and resultant reductions in natural levees along higher-order channels. Predation by egrets, herons, gulls, and harriers has been observed in these marshes during winter high tides, as black rails are forced into the open by rising water. The importance of this predation on a population level, especially in light of impacts to high tide refugia, is unknown, but it may be a significant factor in the extirpation of breeding populations of the species from the South Bay.

It is possible that small numbers of black rails could forage in the diked salt marsh on the former Pintail Duck Club in Area 4 during winter. More likely, small numbers may winter in the marshes along Mowry Slough adjacent to and downstream from the Project area. No suitable habitat occurs in Area 3, and the species is not expected to occur in the portion of Area 3 proposed for development by this Project.

**Western Snowy Plover (*Charadrius alexandrinus nivosus*).** **Federal Listing Status: Threatened; State Listing Status: Species of Special Concern.** The western snowy plover is a small shorebird that occurs on almost every continent. Much of its nesting habitat has been lost to development and high human use. In addition, introduced predators, especially the non-native red fox, have had dramatic effects on snowy plover nesting success (Neuman et al. 2004). In response to severe population declines, the USFWS listed the Pacific coast population of the western snowy plover as Threatened in 1993 (USFWS 1993). Critical habitat was designated for this population in 1999 (USFWS 1999b), and recovery plan was approved in 2001 (USFWS 2007). None of the breeding sites within San Francisco Bay are considered critical habitat.

In the South San Francisco Bay, snowy plovers nest on low, barren to sparsely vegetated salt pond levees and islands, at pond edges, and on salt pan areas of dry ponds (Page et. al. 2000), and preferentially use light-colored substrates such as salt flats (Feeney and Maffei 1991, Marriott 2003). Nesting areas are located near water, where prey (usually brine flies and other insects) are abundant. In some areas, snowy plovers nest within dry salt ponds; in other areas where ponds typically hold water through the summer (e.g., the Newark salt ponds), nests are located primarily on levees.

Portions of the former Pintail Duck Club in area 4 are occupied by salt flats during much of the summer. These salt flats are much too limited in extent to provide suitable nesting habitat for snowy plovers, and the species is not expected to breed on the site. Although snowy plovers have not been observed on the site, it is possible that occasional individuals could forage in the wetlands in the former Pintail Duck Club, and possibly on rare occasions within seasonal wetlands elsewhere in Area 4. However, given the vast extent of much higher-quality foraging habitat in salt ponds in the Newark area, snowy plovers are expected to make very limited use of the Project area if they occur here at all. No suitable habitat occurs in Area 3, and the species is not expected to occur in the portion of Area 3 proposed for development by this Project.

**Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*). Federal Listing Status: Endangered; State Listing Status: Endangered.** 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. Although its primary habitat consists of pickleweed-dominated areas in the upper regions of tidal marshes, it is also found in diked and muted tidal marshes dominated by pickleweed, and recently it has been found in dense vegetation within brackish marshes in the South Bay (H. T. Harvey & Associates 2006d). The salt marsh harvest mouse occurs with the closely related, ubiquitous and abundant western harvest mouse 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. The salt marsh harvest mouse has 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

No suitable habitat for salt marsh harvest mice occurs in Area 3, and the species is not expected to occur there. Salt marsh harvest mice are known to occur in Area 4 from past surveys. H. Shellhammer, Ph.D., an associate scientist with H. T. Harvey & Associates, performed trapping for salt marsh harvest mice within the diked salt marsh in the former Pintail Duck Club area for the CDFG on 11 and 12 June 1985 (Shellhammer et al. 1985). Two salt marsh harvest mice were captured in areas of dense pickleweed separated by an area of intermixed pickleweed/cordgrass and bordered by a levee covered with mixed grass species. Additional surveys to assess the suitability of habitat for salt marsh harvest mice were conducted by Dr. Shellhammer for a power transmission line project on 11 and 12 August 1997 where the transmission towers were on or immediately adjacent to the southeast corner of Area 4 (H. T. Harvey and Associates 1997). Current survey efforts for this document included a reconnaissance-level habitat assessment for this species conducted by Dr. Shellhammer in 2007.

Figure 6 depicts the locations of potential salt marsh harvest mouse habitat in Area 4. The diked salt marsh in Area 4, which is in the west-central portion of the Project area, offers high-quality habitat for the salt marsh harvest mouse and it is assumed that this habitat area is occupied by the species. Suitable salt marsh harvest mouse habitat is also present in the muted tidal salt marsh northwest of ACFCWCD Line D, and the species likely occurs there. Salt marsh harvest mice are presumed to be present throughout the marshes along Mowry Slough adjacent to and downstream from the Project site.

Pickleweed is also present in a ditch along the north side of the agricultural road running east-west in the central portion of Area 4; along the ditch that follows the southwestern border of Area 4; along a remnant slough leading northeastward from the pump in the southern part of Area 4; and along the toe of the levee between Area 4 and ACFCWCD Line N (Figure 6). These linear habitat remnants provide low-quality habitat due to their narrow nature and the unsuitability of adjacent agricultural habitat. In addition, pickleweed is present in the seasonal wetlands on the O'Connor parcel, though because of the isolation of these patches of pickleweed by other habitat types, there is a low probability of occurrence by salt marsh harvest mice in these areas. Nevertheless, unless trapping surveys are performed to determine whether salt marsh harvest mice are present or absent in the narrow, linear pickleweed remnants in Area 4 or

in the small patches of pickleweed on the O'Connor parcel, salt marsh harvest mice will be presumed to be present in all pickleweed-dominated habitats in Area 4. There is some potential for these species to occur in well-vegetated agricultural habitats and ruderal areas adjacent to pickleweed-dominated habitats as well, even where these areas do not contain pickleweed, although such areas do not provide high-quality habitat for this species.

### **California Species of Special Concern and State Fully Protected Species**

**Chinook Salmon (*Oncorhynchus tshawytscha*), Central Valley Fall Run ESU. Federal Listing Status: None; State Listing Status: Species of Special Concern.** Like the steelhead, the Chinook salmon is an anadromous salmonid. 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 have been found in several such streams, including Coyote Creek, Los Gatos Creek, and the Guadalupe River (Leidy et al. 2003), and the species has recently been recorded along lower Alameda Creek as well. These fish are of Central Valley origin; fish sampled from Santa Clara Valley streams are most closely related to Central Valley fall-run hatchery fish (Hedgecock and Garcia-Rossi 2002).

These fall-run Chinook salmon typically arrive in South San Francisco Bay streams in October or later, although on rare occasions, adult Chinook salmon have been detected in these streams in summer, and spawning has been observed on Los Gatos Creek as early as September (Salsbery, pers. comm.). Seasonal stream flow and temperature conditions in these streams may not be suitable for successful spawning by Sacramento River winter-run Chinook salmon, which typically spawn in late spring and summer, or by Central Valley spring-run Chinook salmon, which typically spawn in late summer and early fall. Therefore, any adult Chinook salmon found in the South San Francisco Bay in summer are presumed to be either early fall-run fish or strays from a Central Valley run that are not expected to spawn successfully in these streams.

Much more is known regarding the use of estuarine habitats by Chinook salmon than steelhead, and in at least some areas, juvenile Chinook make heavy use of estuarine habitats. Juvenile Chinook salmon may spend a significant amount of time, up to 189 days (Simenstad et al. 1982), foraging in estuarine habitats, showing significant growth in some estuaries (MacDonald et al. 1987), as they adapt physiologically to higher-salinity environments (Maragni 2000). In at least some areas, tidal marshes are important habitats for Chinook salmon. Fry forage throughout shallower tidal sloughs and channels, even foraging within the marsh during flood tides, while larger smolts forage in larger primary and secondary channels and subtidal habitats (Maragni 2000).

Suitable spawning habitat does not occur within the Project area, but this species migrates through the Bay past Mowry Slough while moving between the ocean and spawning areas in Coyote Creek and the Guadalupe River. It is possible that small numbers of Chinook salmon forage in Mowry Slough, but because no spawning habitat is present in tributaries to Mowry Slough, there is a very low probability of occurrence upstream as far as the Project site, and Chinook are not expected to occur on the site itself.

**Northern Harrier (*Circus cyaneus*).** **Federal Listing Status: None; State Listing Status: Species of Special Concern.** 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, sedges, and other forbs provide cover, usually in wet areas where the risk of mammalian predation is relatively low. Harriers hunt for a variety of prey, including rodents, birds, frogs, reptiles, and insects by flying low and slow in a traversing manner utilizing both sight and sound to detect prey items.

Harriers have been observed foraging in the Project site primarily on Area 4, where they forage low over seasonal wetlands, agricultural fields, and marshes. Although breeding has not been confirmed on the Project site, the diked salt marsh at the former Pintail Duck Club may be used for nesting by a single pair of harriers. The marsh along Mowry Slough adjacent to the site provides potential nesting habitat for one or two additional pairs. The portion of Area 3 where development is proposed by this Project provides low-quality foraging habitat (and does not provide nesting habitat) for harriers due to its intensively cultivated nature and the resulting scarcity of prey on the site.

**White-tailed Kite (*Elanus leucurus*).** **Federal Listing Status: None; State Listing Status: Fully Protected.** The white-tailed kite is a raptor that inhabits open habitats interspersed with shrubs and trees used for nesting. High-quality habitats include large shrubs or trees with dense foliage that provide cover for nests in close proximity to extensive fields, ruderal habitats, and marshes where this species forages. Kites prey primarily on small rodents (especially the California vole), but also feed on birds, insects, reptiles, and amphibians. White-tailed kites are fairly common in parts of the San Francisco Bay area, but urbanization has reduced habitat.

White-tailed kites have been observed foraging in ruderal and wetland habitats in the Project area, and when the agricultural fields are vegetated they forage in these areas as well. Scattered trees and shrubs (e.g., near the intersection of Stevenson Boulevard and the Southern Pacific railroad track in the eastern portion of Area 4, on the O'Connor parcel, near the auto wrecking yard in the northwestern portion of Area 4, and in landscaped areas in Area 3) provide potential nesting sites for the species. At most, however, one or two pairs are expected to breed on the site due to the paucity of trees and shrubs, the territorial nature of the species, and the infrequency of observations of the species on the site. The portion of Area 3 where development is proposed by this Project provides low-quality foraging habitat for white-tailed kites due to its intensively cultivated nature and the resulting scarcity of prey on the site, and it is unlikely that kites will nest in the street trees adjacent to this portion of Area 3 due to human disturbance along Cherry Street and Stevenson Boulevard.

**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 have declined substantially in the San Francisco Bay area in recent years, with declines estimated at 4 to 6 % annually (DeSante et al. in press, in Rosenberg et al.

2007). 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.

H. T. Harvey & Associates have conducted a number of burrowing owl surveys in the Project area. Wildlife ecologists, including S. Rottenborn, Ph.D., S. Terrill, Ph.D., and others have conducted a number of burrowing owl surveys on various parcels of Areas 3 from 1998 to 2005. As portions of Area 3 became developed in the late 1990s and early 2000s, we conducted a number of initial and protocol-level surveys to provide information for specific developments within Area 3.

In 1998, the majority of Area 3 was intensively cultivated, and burrowing owl surveys focused on areas around the perimeter of these fields that supported California ground squirrel burrows. Surveys of the Legacy Stevenson property in the southern portion of Area 3, near the intersection of Stevenson Boulevard and the Southern Pacific railroad tracks, were conducted in February and March 1998. Three burrowing owls were observed along the adjacent ACFCWCD Line D channel east of the Southern Pacific railroad tracks on 11 March 1998 (H. T. Harvey & Associates 1998). A single owl was observed roosting in a culvert along the same portion of the ACFCWCD Line D in April (H. T. Harvey & Associates 1999). For the development of the campus industrial park for Legacy Stevenson, protocol-level surveys for burrowing owls were conducted on 3, 23, 24, and 25 June 1998 and on 4, 5, 6, 8, and 9 November 1998 located west of Stevenson Boulevard, north of the Southern Pacific railroad tracks, east of ACFCWCD Line D, and south Eureka Street (H. T. Harvey & Associates 1999). In June a single pair attempted and failed to nest on the Legacy Stevenson site and a pair was observed along the ACFCWCD channel in November. Protocol-level surveys for burrowing owls were again conducted on 5, 6, 7, and 8 December 2000, with a follow-up survey on 20 February 2001, for development within the campus industrial park west of Stevenson Boulevard between the Southern Pacific railroad tracks and Eureka Street (Figure 4; H. T. Harvey & Associates 2000, 2001b). No burrowing owls, or any sign of owls, were observed during the protocol or follow-up survey. Protocol-level surveys for the development of the Silliman Recreational Complex in the northwestern portion of Area 3 were conducted on 31 July 2002 and 1, 2, and 12 August 2002 with no owls or sign thereof observed; and again on 20, 21, 22, and 25 November 2002 with one owl and sign of owls on several additional burrows (Figure 4; H. T. Harvey & Associates 2002a, 2002b). The survey area was east of Mowry Avenue, south of Cherry Street, and north of the Southern Pacific railroad tracks.

The Legacy Stevenson campus industrial park project in the southeastern portion of Area 3 impacted USACE jurisdictional habitat. As mitigation for those impacts, seasonal wetlands were constructed just northeast of the intersection of Stevenson Boulevard with the Southern Pacific railroad tracks. Construction of the seasonal wetlands impacted burrowing owls then using the site. Artificial burrows for burrowing owls were installed along the berm of the seasonal wetland at the corner of Stevenson Boulevard and the Southern Pacific tracks. The artificial burrows were in use by burrowing owls in 2003 and 2004 (S. Terrill pers. obs.); however, these burrows and the habitat surrounding them have not been maintained and now are no longer suitable as habitat for burrowing owls as the vegetation is too tall.

Protocol-level surveys for burrowing owls were conducted on 9, 12, 13 September 2005 for the construction of the Xtraplus building development along the eastern border of the campus industrial park (Figure 4; H. T. Harvey & Associates 2005a). Additionally, two pre-construction surveys were conducted for this site on 9 and 14 September 2005 and subsequent site surveys 30 November 2005 and 1, 2, and 4 December 2005 (H. T. Harvey & Associates 2005b). Two burrowing owls were observed during these surveys, foraging on the Xtraplus site and roosting in burrows within ruderal habitat between the industrial park and the railroad tracks.

In Area 4, burrowing owls were observed during reconnaissance-level surveys conducted in April and May 2001 along the levee road west of the intersection of ACFCWCD Line D and the Southern Pacific railroad tracks (H. T. Harvey & Associates 2001a). During reconnaissance-level surveys for this assessment that were conducted by K. Wells, Ph.D., on 14 and 15 August 2006, five pairs of owls were observed within the Project area, both in Areas 3 and 4. In Area 3, one pair of owls was present in the ruderal herbaceous habitat in the southeast corner of Area 3 near the intersection of Stevenson Boulevard with the Southern Pacific railroad tracks (Figure 4). However, burrowing owls have not been observed in the northeastern part of Area 3 where development is proposed by this Project. Although owls may occasionally forage in this portion of Area 3, this area provides low-quality foraging habitat due to its intensively cultivated nature and the resulting scarcity of prey on the site.

In Area 4, four different sets of burrows were occupied by owls in 2006. Two were located near the Southern Pacific railroad tracks on the northeastern border of Area 4, one was located along the Mowry Slough levee midway along the western border of Area 4, and one was located along the levee on the southeastern side of ACFCWCD Line D. Burrowing owls were observed at some of these locations in Area 4 during wetland delineation surveys by A. Breen, Ph.D. and K. Hardwicke, Ph.D., in March and April 2007. However, protocol-level surveys conducted throughout Areas 3 and 4 by E. Jones, Ph.D., on 10, 11, 12, and 13 July 2007, late in the breeding season, detected only a single owl (at the southern edge of the Ohlone College property in Area 3). The most recent observation of burrowing owls on the Project site was on 7 August 2008, when J. Cezniak observed two owls occupying a burrow along the Southern Pacific railroad tracks in the northern portion of Area 4, northwest of ACFCWCD Line D. Numbers of owls on the site in 2007 and 2008 are much reduced compared to those in 2006.

Burrowing owls roosting or nesting on the Project site may forage in a variety of habitats, including agricultural, ruderal, seasonal wetland, and marsh habitats with short and/or sparse vegetation. Based on pellets examined at burrows in the Project area, arthropods comprise a high proportion of these owls' diets (S. Rottenborn, pers. obs.).

**Loggerhead Shrike (*Lanius ludovicianus*).** **Federal Listing Status: None; State Listing Status: Species of Special Concern.** The loggerhead shrike is a predatory songbird associated with open habitats interspersed with shrubs, trees, poles, fences, or other perches from which it can hunt. Nests are built in densely foliated shrubs or trees, often containing thorns, which offer protection from predators and upon which prey items are impaled. Nationwide, loggerhead shrike populations have declined significantly over the last 20 years. Loggerhead shrikes are still fairly common in parts of the San Francisco Bay area, but urbanization has reduced habitat, and local populations are likely declining.

Loggerhead shrikes have been observed foraging in ruderal habitats in Area 4, and scattered trees and shrubs (e.g., near the intersection of Stevenson Boulevard and the Southern Pacific railroad track in the eastern portion of Area 4, on the O'Connor parcel, near the auto wrecking yard in the northwestern portion of Area 4, and in landscaped areas in Area 3) provide potential nesting sites for the species. At most, however, two or three pairs are expected to breed on the site due to the paucity of trees and shrubs, the territorial nature of the species, and the infrequency of observations of the species on the site. The portion of Area 3 where development is proposed by this Project provides low-quality foraging habitat for shrikes due to its intensively cultivated nature and the resulting scarcity of prey on the site.

**Bryant's Savannah Sparrow (*Passerculus sandwichensis alaudinus*).** **Federal Listing Status: None; State Listing Status: Species of Special Concern.** The Bryant's Savannah sparrow is one of 4 subspecies of savannah sparrow that breed in California. This subspecies occurs primarily along coastal and bay shore areas from Humboldt Bay (Humboldt County) to Morro Bay (San Luis Obispo County). Bryant's savannah sparrow is found year-round in low-elevation tidally influenced habitat, specifically pickleweed-dominated salt marshes, and adjacent grasslands and ruderal areas. In South San Francisco Bay, levee tops with short vegetative growth and levee banks with high pickleweed have been observed to be the preferred nesting habitat of this sparrow (Fitton 2008). Habitat loss and fragmentation due to urban and industrial development, currently appears to be the main threat to this subspecies.

In the Project area, Bryant's savannah sparrow is a fairly common breeder in short pickleweed-dominated portions of the diked salt marsh in Area 4 (and in adjacent areas along Mowry Slough). It nests in lower numbers in the muted tidal marsh and in ruderal habitats in Area 4, and a few pairs may nest in ruderal habitats in Area 3 as well, although the habitat within the portion of Area 3 where development is proposed by this Project is unsuitable for nesting due to its intensively cultivated nature. Although this species may attempt nesting in grain crops, these crops are harvested before nests can successfully fledge young. Bryant's savannah sparrows forage in short vegetation in agricultural fields, seasonal wetlands, ruderal habitats, and marshes on the Project site, and during the non-breeding season it and other savannah sparrow subspecies may forage in open areas throughout much of the Project area.

**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 apparently 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 were observed to be fairly common, and are expected to breed, in the Project area where tall wetland vegetation is present, such as the diked salt marsh at the former Pintail Duck

Club, in cattails and bulrushes within seasonal wetlands on the O'Connor parcel, and in freshwater marsh around the stormwater wetland in the southeastern corner of Area 3. Song sparrows are also common in the marsh along Mowry Slough adjacent to Area 4. No suitable nesting habitat for song sparrows is present in the portion of Area 3 where development is proposed by this Project.

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. Conclusive identification of individual song sparrows as *pusillula* (rather than the widespread upland race *M. m. gouldii*) is not possible unless the birds are examined in the hand. Therefore, it is difficult to make confident determinations about the racial identity of song sparrows breeding on the Project site. Due to the freshwater influence in portions of the Project area, it is possible that at least some of the song sparrows breeding on the site (e.g., in the mitigation wetland in the southeastern corner of Area 3) are *gouldii*. However, given the proximity of these habitats to saline habitats on and adjacent to the site, song sparrows breeding in the diked salt marsh in Area 4 may be *pusillula* or intergrades.

**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. Because subspecies cannot be reliably distinguished in the field, determination of the presence of San Francisco common yellowthroat can be achieved only by locating a nest in the breeding range known for this subspecies, or by observing them during the summer months when only the San Francisco common yellowthroat is present. 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).

San Francisco common yellowthroats breed primarily in fresh and brackish marshes, although they nest in salt marsh supporting tall vegetation. 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. On the Project site, yellowthroats breed in tall emergent vegetation within the diked salt marsh at the former Pintail Duck Club, and likely in the seasonal wetland on the O'Connor parcel and in the freshwater marsh at the mitigation wetland in the southeastern corner of Area 3. One or two pairs may also nest in emergent vegetation around the wrecking yard detention basins. San Francisco common yellowthroats also breed commonly along Mowry Slough adjacent to the site. No suitable nesting habitat for San Francisco common yellowthroats is present in the portion of Area 3 where development is proposed by this Project.

**Tricolored Blackbird (*Agelaius tricolor*). Federal Listing Status: None; State Listing Status: Species of Special Concern.** Tricolored blackbirds are found almost exclusively in the Central Valley and central and southern coastal areas of California. This species is considered a Species of Special Concern (at its nesting colonies) in California due to the loss of wetland habitats in the state. The tricolored blackbird is highly colonial in its nesting habits and forms

dense breeding colonies, which in some Central Valley areas may consist of up to tens of thousands of pairs. This species typically nests in tall, dense, stands of cattails or tules (*Scirpus* sp.), but also nests in blackberry (*Rubus* sp.), wild rose (*Rosa* sp.) bushes and tall herbs. Nesting colonies are usually located near standing or flowing fresh water. Tricolored blackbirds form large, often multi-species, flocks during the non-breeding period and range more widely than during the reproductive season.

Appropriate breeding habitat for this species in the Project area is limited, and most breeding sites in the South Bay area are well inland from areas of tidal influence. A CNDDDB record from 1986 indicates the presence of a colony in North Marsh in Coyote Hills Regional Park, northwest of the Project area, but the CNDDDB (2008) does not list any breeding records from the immediate Project area. The tricolored blackbird typically nests in nontidal freshwater marshes, and it is therefore unlikely to use the diked salt marsh in the former Pintail Duck Club or tidal marsh along Mowry Slough adjacent to the Project site for nesting. Also, the freshwater marsh at the stormwater wetland in the southeastern corner of Area 3 is likely too small to support a tricolored blackbird colony. Tricolored blackbirds did not nest on the Project site in 2006, 2007, or 2008, and there is no evidence that nesting has ever occurred there. However, the possibility of future breeding in dense cattails and tules in the perennial wetlands in the western portion of Area 4 or at the stormwater wetland cannot be eliminated; Figure 6 depicts areas potentially suitable for nesting by tricolored blackbirds. No suitable nesting habitat for tricolored blackbirds is present in the portion of Area 3 where development is proposed by this Project.

**Salt Marsh Wandering Shrew (*Sorex vagrans halicoetes*). Federal Listing Status: None; State Listing Status: Species of Special Concern.** Salt marsh wandering shrews occur most often in medium-high wet tidal marsh (6 to 8 ft 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 on the Project site. However, because the species has been recorded in diked marshes, and because salt marsh harvest mice have been recorded on Area 4, portions of the diked and muted tidal salt marsh habitat in Area 4 that are dominated by pickleweed (as shown in Figure 6) are considered potential habitat for this species. This species is also presumed to be present in pickleweed-dominated habitat along Mowry Slough adjacent to and downstream from the site. No suitable habitat for this species is present in Area 3.

**Pallid Bat (*Antrozous pallidus*).** **Federal Listing Status: Forest Service Sensitive Species; State Listing Status: Species of Special Concern.** The pallid bat is a light brown or sandy colored, long-eared, moderate-sized bat that occurs throughout California with the exception of the northwest corner of the state and the high Sierra Nevada (Zeiner et al. 1990). Pallid bats are most commonly found in oak savannah and in open dry habitats with rocky areas, trees, buildings, or bridges for roosting. Coastal colonies commonly roost in deep crevices in rocky outcroppings, in buildings, under bridges, and in the crevices, hollows, and exfoliating bark of trees. Colonies can range from a few individuals to over a hundred (Barbour and Davis 1969), and usually this species occurs in groups larger than 20 individuals (Wilson and Ruff 1999).

Although crevices are important for day roosts, night roosts often include open buildings, porches, garages, highway bridges, and mines. Pallid bats may travel up to several miles for water or foraging sites if roosting sites are limited. This bat typically forages on terrestrial arthropods in open habitats and regional populations and individuals may show selective prey preferences (Johnston and Fenton 2001). Pallid bat roosts are very susceptible to human disturbance, and urban development has been cited as the most significant factor contributing to their regional decline (Miner and Stokes 2005).

Historically, pallid bats may not have occurred as near the Bay as the Project site; however, the development of agriculture and construction of buildings in these areas may have allowed colonization of these areas. Pallid bats are not known to occur in the immediate Project area, and reconnaissance-level surveys of the farm buildings on Area 4 did not detect any evidence of roosting bats. Nevertheless, it is possible that pallid bats might roost in one or more of several buildings or trees on the site, as indicated in Figure 6. Such potential roosts include a residence just south of the intersection of Stevenson Boulevard and the Southern Pacific railroad in Area 4; two agricultural structures (barn or equipment holding sheds) in the eastern portion west of the residence; industrial buildings within the auto wrecking yard in the northwestern part of Area 4; and blue gum eucalyptus (*Eucalyptus globulus*) trees near the auto wrecking yard along Mowry Avenue (Figure 6). Although pallid bats may occasionally forage in Area 3, the portion of Area 3 where development is proposed by this Project provides low-quality foraging habitat due its intensively cultivated nature, and no suitable roost sites are present in or near this proposed development area.

### **Other Species of Regional Significance**

**Pacific Harbor Seal (*Phoca vitulina richardsi*).** **Federal Listing Status: None; State Listing Status: None.** Pacific harbor seals occur along the Pacific coast of North America from Alaska south to Baja California. They are currently the only marine mammals that are permanent residents of San Francisco Bay. In San Francisco Bay, they haul out at a number of sites to rest and pup (give birth). Most pupping occurs during spring, with a peak in April (Fancher and Alcorn 1982). Females nurse pups for about 28 days, during which time they are susceptible to being separated as a result of human disturbance. Haul-out sites are typically mudflats far from areas used regularly by humans, and near deeper water, where seals forage. Harbor seals forage in nearshore marine habitats on variety of fishes and invertebrates. Kopec and Harvey (1995) studied diet at several haul-out sites in 1991-1992, and found that in the South Bay, major diet

items included yellowfin goby (*Acanthogobius flavimanus*), staghorn sculpin (*Leptocottus armatus*), and white croaker (*Genyonemus lineatus*).

Although they are not listed by the state as a Species of Special Concern, harbor seals are protected under the federal Marine Mammal Protection Act, and are sensitive to human disturbance. NMFS (the agency that oversees the protection of marine mammals) recommends a 100-yard disturbance-free buffer around harbor seals. Disturbance can lead to separation of pups from nursing mothers, can add physiological stress to adults, and can lead to long-term abandonment of historic haul-out sites (Lidicker and Ainley 2000).

More than 10 sites around the Bay may be used by seals at any given time (Lidicker and Ainley 2000), and any undisturbed intertidal habitat accessible to the open Bay could potentially be used by harbor seals. Primary haul-out sites in San Francisco Bay are Mowry Slough (243 seals in 1999), Castro Rocks near the Richmond-San Rafael Bridge (107 seals in 1999), and Yerba Buena Island (72 seals in 1999; Lidicker and Ainley 2000).

Mowry Slough is the most important pupping site and haul-out in the South Bay. In recent years, numbers of pups produced at this location have ranged from 59 to 144 (Green et al. 2004). The harbor seal haul-out sites along Mowry Slough are located not far above the mouth of Mowry Slough, approximately 4 linear mi downstream (and 2 mi straight-line distance) from the Project area. Harbor seals may swim farther upstream along Mowry Slough, but they are not expected to occur as far upstream as the Project area.

**Yuma Myotis (*Myotis yumanensis*). Federal Listing Status: None; State Listing Status: None.** The Yuma myotis forages over open baylands habitats in the South Bay. Although this species is not on the list of California species of special concern, and it has no other special status, it is relatively rare in bayside areas in the South Bay. Currently, only three large maternity roosts (consisting of approximately 20 individuals in Alviso, 80 individuals in Fremont, and 40 individuals in Palo Alto) of the Yuma myotis are known in close proximity to high-quality baylands foraging habitat.

Although no signs of bat roosts have been observed on Newark Areas 3 and 4, no focused surveys for such roosts have been conducted, and the buildings in Area 4 could potentially provide suitable roosting habitat for Yuma myotis. Potential roosts include a residence just south of the intersection of Stevenson Boulevard and the Southern Pacific railroad in Area 4; two agricultural structures (barn or equipment holding sheds) in the eastern portion west of the residence; and industrial buildings within the auto wrecking yard in the northwestern part of Area 4 (Figure 6). Due to the scarcity of roosts of this species in close proximity to high-quality baylands foraging habitat, any maternity colony of this species, if present on the site, would be regionally important. Although this species may occasionally forage in Area 3, the portion of Area 3 where development is proposed by this Project provides low-quality foraging habitat due its intensively cultivated nature, and no suitable roost sites are present in or near this proposed development area.

## REGULATED HABITATS AND RESOURCES

### Jurisdictional Waters of the United States/Waters of the State

**Regulations Overview.** 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 jurisdictional 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).

Areas not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water-filled depressions (33 CFR, Part 328).

Construction activities within jurisdictional waters are regulated by the USACE. The placement of fill into such jurisdictional waters must be in compliance 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 [RWQCB]) charged with implementing water quality certification in California.

**Survey Results.** The jurisdictional determination received from the USACE on 11 October 2007 (USACE File #2006-400075S; see Appendix C) includes approximately 242 ac of wetlands and 34.21 ac of “other waters” (total of 277 ac of jurisdictional Waters of the U.S.), all in Area 4; this determination will expire in 5 years. These jurisdictional areas include all aquatic, diked salt marsh, seasonal wetlands, muted tidal salt marsh, freshwater marsh, brackish marsh, and tidal salt marsh present on the site. Areas supported by artificial hydrology, including portions of the upland agricultural fields in Area 3 that supported hydrophytic vegetation due to leaky irrigation systems (which have since been repaired), as well as two detention basins that collect runoff from the auto wrecking yards, were not considered jurisdictional Waters of the U.S. by the USACE. A permit from the USACE (either a Nationwide Permit or an Individual Permit, depending on the impact) will be required from the USACE for any Project-related impacts to jurisdictional Waters of the U.S.

### 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.”

**Survey Results.** On the Areas 3 and 4 Project site, all USACE-jurisdictional areas are also jurisdictional Waters of the State. In our opinion, there are no other areas that should be considered jurisdictional Waters of the State on the Project site (subject to concurrence by the RWQCB), and thus no RWQCB-jurisdictional areas are present in the portion of Area 3 proposed for development by this Project. An application must be made to the RWQCB, San Francisco Bay Region (Oakland, CA 510.622.2300) requesting a Waste Discharge Requirement (WDR) for impacts to the seasonal wetlands (i.e., jurisdictional Waters of the State) resulting from project improvements. The project applicant must be in receipt of a WDR, with copies supplied to the County, prior to grading activities within wetland habitats.

#### **Habitats Regulated Under Fish and Game Code Section 1600 *et seq.***

Activities that result in the diversion or obstruction of the natural flow of a stream, or substantially change its bed, channel or bank, or utilize any materials (including vegetation) from the streambed require that the Project applicant enter into a Streambed Alteration Agreement with CDFG, under sections 1600-1603 of the California Fish and Game Code. The CDFG potentially extends the definition of stream to include “intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams mapped on USGS quads, 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).

**Survey Results.** The CDFG typically does not claim jurisdiction over fully tidal habitat, including Mowry Slough. Based upon our previous experience with similar habitat types, we do not believe that any of the agricultural ditches or any of the ACFCWCD channels located adjacent to or within the Areas 3 and 4 Project site would be claimed by the CDFG to fall under its jurisdiction. As such, it is likely that no areas within the Project site fall under CDFG jurisdiction, although ultimate determination of jurisdiction lies with CDFG staff.

## **San Francisco Bay Conservation and Development Commission**

The San Francisco Bay Conservation and Development Commission (BCDC) is a California state agency that has jurisdiction over the open water, marshes, and mudflats of the greater San Francisco Bay including the following: the first 100 ft inland from the shoreline around San Francisco Bay, the portion of the Suisun Marsh below the 10-ft contour line, portions of most creeks, rivers, sloughs, and other tributaries that flow into San Francisco Bay, salt ponds, duck hunting preserves, game refuges, and other managed wetlands that have been diked off of San Francisco Bay. BCDC approval must be obtained before placing solid material, building or repairing docks or other structures, dredging or extracting material from the Bay bottom, substantially changing the use of any structure or area, constructing, remodeling, or repairing any structure, and/or subdividing property or grading land.

**Survey Results.** The BCDC may claim jurisdiction over Mowry Slough, the only fully tidal waterway near the Project site. Should Mowry Slough fall under the BCDC Bay jurisdiction, all land within 100 ft of Mowry Slough would constitute part of the BCDC Shoreline Band. Any impacts to Shoreline Band lands will require a permit from the BCDC. The ACFCWCD channels and all other ditches on the site are not fully tidal, and, as such, do not fall under the jurisdiction of the BCDC. As such, there are no other areas within the Project site that fall under BCDC jurisdiction.

## **City of Newark Tree Ordinance**

The City of Newark maintains and enforces a tree ordinance to protect the existing trees within the City. Under the ordinance, no person shall cut down, destroy, remove or move any tree which shall include any live woody plant having one or more well defined perennial stems with a trunk diameter of 6 inches or greater, measured at 4 ft above ground level growing within the city limits on any parcels of land except developed residential parcels of land 10,000 ft<sup>2</sup> or less in area, unless a permit to do so has been obtained from the public works director (Ord. 63 Section2 [part], 1979).

Following investigation, a tree removal permit shall be issued unless the public works director finds that any such tree is in a reasonably healthy condition and is necessary in order to preserve the health, safety and welfare of a substantial number of persons in the community by serving a windbreak function; or that the public interest will be otherwise unduly prejudiced by the destruction or removal of any such tree; and that the public interest in preservation of any such tree is not outweighed by the individual hardship on the applicant in the event the application is denied. In applying the standards set forth in this chapter, nothing shall be deemed to prevent the public works director from issuing a permit to destroy or remove part of the trees involved in an application, while denying a permit as to the remainder (Ord. 163 § 2 [part], 1979).

**Results.** A formal tree survey was not conducted as part of these biological technical studies. However, several ordinance-sized trees occur within both Areas 3 and 4 of the Project site. If these trees are to be removed, a permit from the City of Newark will likely be required.

## IMPACTS AND MITIGATION

This section describes our assessment of the impacts to biological resources expected to occur under both Project alternatives. A comparison of the impacts of these two alternatives, as well as a comparison of the ecological value of the achievable mitigation under the two alternatives, is included in Appendix D.

Development of the Project area as proposed will ultimately result in conversion of some of the site's natural habitats into structures, pavement (roadway and parking areas), golf course, and landscaping. These proposed uses would have a number of impacts on the area's biological resources, which may constitute significant adverse effects. 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, a project's effects on biotic resources are deemed significant where the project would:

- "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"

In addition to the section 15065 criteria that trigger mandatory findings of significance, Appendix G of the CEQA Guidelines provides a checklist of other potential impacts to consider when analyzing the significance of project effects. The impacts listed in Appendix G may or may not be significant, depending on the level of the impact. For biological resources, these impacts include whether the project would:

- "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 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”

This section describes the assumptions and thresholds of significance developed to evaluate impacts on the biological resources of the Project site that would result from developing the proposed Newark Area 3 and 4 Specific Plan Project. Two general assumptions that influence the assessment of impacts to the Project site’s biotic resources are as follows:

1. Direct impacts to plant and wildlife species are assumed to be correlated with the loss of habitats with which these species are associated. These losses would result from site excavation, grading, filling, infrastructure construction, or other damage to habitats such that they can no longer sustain a species, or so that the number of individuals that they sustain is reduced, and direct loss due to death or injury or disturbance by construction activities and human uses to the extent that the species cannot continue their lifecycle activities. The conversion of these natural communities to structures, a golf course, landscaping, and infrastructure may therefore result in the loss of or reduction of use for some plant and animal species. The existing species are usually eliminated but may be replaced with a suite of species that tolerate these development activities, but may not be as desirable, if suitable habitat is still available. Removal of a sensitive habitat, such as wetlands, that is replaced by the development would be a permanent, direct impact. Direct impacts may also be temporary if they disturb a habitat that is subsequently restored or displace individuals of a given species that later return to the site.
2. Indirect impacts could also occur. If remaining fragments of undeveloped habitat are isolated from larger areas of contiguous habitat, the remaining habitats are expected to have lower biological values than those prevailing before development. Some species can no longer subsist in these smaller fragments, the fragments may be heavily influenced by surrounding stressors, or species may not reproduce successfully without exchange with other populations. Indirect impacts can occur in portions of the site not directly impacted, or to off-site habitats and species, due to such factors as degraded water quality; changes in hydrology; noise or dust from transport of soil or materials; disturbance of wildlife from human activities and domestic animals; predation by domestic and urban-adapted species; competition by introduced plant species; and other factors.

## **KEY ASSUMPTIONS**

Our assessment of impacts to biotic resources resulting from the activities proposed within the Areas 3 and 4 Specific Plan Project area is based upon the draft land use plan developed for the Project (January 2009; Figure 2). Project elements particularly important to the impact assessment include the proposed housing and golf course which will directly affect biological resources within the footprints of these components. However, other Project features, including detailed measures proposed to maintain water quality and existing hydrologic patterns (such as bioswales, leach fields, and detention basins), drainage and grading plans, and site access, among others, were not available at the time of our assessment.

We have made the following assumptions to complete this evaluation:

- The limits of grading occur somewhere within the areas delimited as “residential” or “golf course” shown in Figure 2. Although only a portion of the potential development envelope in Area 4 will actually be impacted directly, we have assumed that up to the entire area within the potential development envelope could be impacted directly for the purpose of this impact analysis. We have assumed that no grading, fill, vegetation removal, or other such direct impacts will occur outside the potential development envelope shown in Figure 2 with one exception: the Stevenson Boulevard flyover will result in impacts to a small area in the southeastern corner of Area 3, between the stormwater wetlands and the eastern edge of the existing Stevenson Boulevard right of way.
- Detention facilities and water quality treatment of runoff from the development will be located within the development footprint. The Project will certainly treat runoff, as described in the section of the DEIR regarding hydrology and water quality. However, because specific details regarding the nature of this treatment were not available at the time of our assessment, and because of the extent (and, in some areas, high quality) of wetlands on the site, we have assessed impacts as though water quality impacts are uncertain in the absence of mitigation.
- All site access for construction and the ultimate development will be from existing roadways only, specifically from Stevenson Boulevard or possibly via Mowry Avenue.
- Levee and peripheral area maintenance, including herbicide-control of black mustard and mowing, will continue on the site.
- We assume that impacts to biological resources in the Project vicinity due to rising sea level related to global warming will not substantially affect this biological resource impact analysis as the existing outboard levee and pumps that are currently in use to drain the site will continue to be managed to maintain current hydrological conditions within the Project areas. For example, any Project features, including any required mitigation, in the southeastern part of Area 4 will still require pumping to move water into Mowry Slough, whether under existing conditions or under conditions of higher sea levels. If necessary, pumping capacity will be adjusted to maintain suitable hydrologic conditions to maintain existing and mitigation wetlands as designed. If any levee improvements are required in the future to offset sea level rise, the environmental effects of those improvements will be determined separately (i.e., for that specific levee improvement project).

## REGULATORY SETTING

Biological resources are regulated by the following:

Federal Endangered Species Act. The 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 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 Section 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 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 (CEQA 1997). 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 USACE is responsible for regulating the discharge of fill material into jurisdictional Waters of the United States. Jurisdictional 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 jurisdictional Waters of the U.S. are termed “isolated wetlands” and, depending on the circumstances, may also be subject to USACE jurisdiction.

California Water Quality and Waterbody Regulatory Programs. Pursuant to Section 401 of the federal Clean Water Act, projects that are regulated by the USACE 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.

The CDFG exerts jurisdiction over the bed and banks of rivers, lakes, and streams according to provisions of Sections 1601 to 1603 of the Fish and Game Code. The Fish and Game 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.

The Federal Migratory Bird Treaty Act (16 U.S. Code 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. All native bird species in the Project area are covered by this Act. To avoid conflicts with this Act, construction in areas supporting nesting birds should be initiated outside the nesting season (the nesting season typically extends from February through August), or pre-construction surveys should be conducted for active nests (with buffers free from new disturbance maintained around such nests) prior to the initiation of construction.

The California Fish and Game Code includes regulations governing the use of, or effects on, many of the state's fish, wildlife, and sensitive habitats. Certain sections of the Fish and Game Code describe regulations pertaining to protection of certain wildlife species. For example, Fish and Game Code Section 2000 prohibits take of any bird, mammal, fish, reptile, or amphibian except as provided by other sections of the code.

Fish and Game Code Sections 3503, 3513, 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 the Fish and Game Code Section 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." Bats and other non-game mammals are protected by Fish and Game Code Section 4150, which states that all non-game mammals or parts thereof may not be taken or possessed except as provided otherwise in the code or in accordance with regulations adopted by the commission. Activities resulting in mortality of non-game mammals (e.g., destruction of an occupied non-breeding bat roost, resulting in the death of bats), or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), may be considered "take" by the CDFG.

The California Native Plant Society, 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 are considered significant. In addition, plants occurring on List 3 or 4, or plants deemed significant by an experienced botanist may be considered to be significant under CEQA.

## **EFFECTS FOUND TO BE LESS-THAN-SIGNIFICANT**

In our discussion of the following impacts, the general nature of each impact is described first, followed by a brief discussion of the extent of the impact within Area 3 and Area 4.

### **Loss of or Temporary Impacts to Upland Agriculture, Ruderal Herbaceous Field, Developed, and Coastal Scrub Habitat and Associated Wildlife Species**

Depending on the ultimate Project design, the majority of the upland agriculture, ruderal herbaceous field, developed habitats, and portions of the coastal scrub habitat could be lost through grading and construction of proposed Project elements, including housing and/or the golf course. These habitat types are grouped together for the purpose of this impact discussion because these upland habitats are not considered sensitive or regulated habitats as are the wetland, aquatic, and marsh habitats, and because they are relatively abundant regionally.

The development and construction of the Project components (which may include a golf course, housing, and associated infrastructure) could result in the loss of nesting, foraging, roosting, burrowing, and breeding habitat for a variety of wildlife species and the loss of habitat for many plant species and their associated plant communities. Due to the level of existing disturbance from agricultural use, these habitat types represent low-quality habitat for most native plants and wildlife. Few native plants are generally found in these non-sensitive habitats. Likewise, the lack of contiguity between these habitats in Areas 3 and 4 and undisturbed habitat elsewhere diminishes their value to native plants and rare wildlife species. Wildlife that use these habitats, described previously under *Biotic Habitats*, are mostly relatively common, widespread species.

For most species associated with these common habitats, the loss of these habitats will result in a very slight reduction in regional populations. The upland agriculture, ruderal herbaceous field, developed, and coastal scrub habitat that will be impacted by the Project represents a very small proportion of the regional extent of these habitat types, and most associated plant and wildlife species likewise represent a very small proportion of regional populations. As a result, the Project's impacts do not meet the CEQA standard of having a *substantial* adverse effect on these species' populations, and the loss of these habitats and associated species is considered less than significant (however, see *Impacts to Habitat for Certain Potentially Breeding Special-Status Animal Species* and *Potential Impacts to Burrowing Owls* below).

In some areas, the upland habitats on the site provide a buffer or transition area upslope from wetlands and marshes. Where such upland transition zones are located adjacent to tidal marsh, they provide important refugia for tidal marsh species during high tides that inundate most of the marsh plain. Even in nontidal areas, such upland habitat can provide refugia for wetland species during periods of flooding. However, upland areas on the site do not provide high-quality transitional habitat because these habitats are regularly disturbed by agricultural activities (i.e., disking, planting, and harvesting), and because no habitats on the site are fully tidal and none are thus subject to complete inundation by very high tides. In addition, most of this upland habitat has also been infested with invasive, exotic plant species with relatively little value for native wildlife species. As a result, the loss of this upland transitional habitat is considered less than significant.

**Project Area 3.** Up to 71.9 ac of upland agricultural areas and 5.7 ac of developed habitats could be lost through grading and construction of Project elements in Area 3.

**Project Area 4.** Up to 154.6 ac of upland agricultural areas, 43.0 ac of ruderal herbaceous field, 2.2 ac of coastal scrub habitat, and 23.7 ac of developed habitats could be lost through grading and construction of Project elements in Area 4.

### **Impacts to Habitat for and Individuals of Certain Non-breeding Special-status Wildlife Species**

Several special-status wildlife species may occur on the Project site as occasional visitors, migrants, or transients but do not breed on the site. These include the American white pelican, golden eagle, black tern, California least tern, Vaux's swift, bank swallow, California yellow warbler, grasshopper sparrow, and Townsend's big-eared bat. American white pelicans and California least terns may, on rare occasions, forage for fish in aquatic habitats within the former Pintail Duck Club, although neither species has been observed on the site and neither is expected to occur frequently or in large numbers. Black terns may forage (usually aerially, for insects) over these marshes, but they are rare transients anywhere in the South Bay and are expected to occur on-site very infrequently and in low numbers, if they occur there at all. Golden eagles may hunt for small mammals occasionally in agricultural fields or ruderal herbaceous habitat. Vaux's swifts, bank swallows, and Townsend's big-eared bats may forage for insects over the site, but would not roost on the Project site, and would not occur frequently or in large numbers.

Western red bats may forage on the site during migration and in winter, and may roost in trees on the Project site; however, this species is solitary (i.e., it does not form large roosts), and habitat for at most a few individuals could be impacted by the Project. California yellow warblers can be found foraging in fields of invasive fennel within ruderal habitats, and in ornamental vegetation, during migration and small numbers of grasshopper sparrows may forage in the agricultural fields and ruderal habitats.

Project construction would not result in injury or mortality of any individuals of these species, which are mobile enough to avoid construction equipment. The loss of habitat due to the Project will have no effect on the breeding success of any of these species since these species do not breed on or near the Project site. Such habitat loss will result in a reduction of foraging and/or roosting habitat available to them regionally. However, with the exception of yellow warblers, which are abundant migrants in a variety of habitats throughout the Bay area, none of these species would occur regularly or in even moderate numbers on the Project site, and the Project area does not offer high-quality habitat for these species. As a result, the Project's impacts do not meet the CEQA standard of having a *substantial* adverse effect on these species' populations, and the Project will have a less than significant impact to these species.

**Project Area 3.** Development of Project Area 3 could result in the loss, either due to fill or due to functionality, of up to 71.9 ac upland agricultural habitat used by some of these non-breeding special-status animal species.

**Project Area 4.** Development of Project Area 4 could result in the loss of up to 285.4 ac of wildlife habitat for certain non-breeding special-status animal species, including 43.0 ac of ruderal herbaceous habitat, 154.6 ac of upland agricultural habitat, 2.2 ac of coastal scrub, 5.5 ac of aquatic habitat, 78.0 ac of seasonal wetland habitat, 0.9 ac of brackish marsh, and 1.2 ac of wrecking yard detention basins.

### **Impacts to Habitat for and Individuals of Certain Potentially Breeding Special-status Animal Species**

Several special-status bird species could potentially breed on or adjacent to the site but are not expected to be significantly impacted by the Project. These species include the northern harrier, white-tailed kite, loggerhead shrike, Alameda song sparrow, Bryant's savannah sparrow, and San Francisco common yellowthroat.

Up to one or two pairs of white-tailed kites and two or three pairs of loggerhead shrikes may nest in trees or shrubs in areas where development will occur. In the long term, trees and shrubs located in or around areas of proposed development may provide suitable nest sites for these species. However, the Project will also convert agricultural, ruderal, and seasonal wetland habitats where these species forage into developed and landscaped areas that are less suitable for foraging. Also, individuals of these species are likely to be disturbed by construction, human activities, domestic animals, and other stressors related to the Project. As a result, it is assumed that up to one or two pairs of kites and two or three pairs of shrikes may be lost as a result of this Project.

Northern harriers may nest on the ground in the diked salt marsh on the Project site and along Mowry Slough. These areas will not be directly impacted by Project development, and thus no nesting habitat will be lost. However, the Project will convert agricultural, ruderal, and seasonal wetland habitats where harriers forage into developed and landscaped areas that are less suitable for foraging. Also, individuals of these species, both on-site and in Mowry Slough, are likely to be disturbed by construction, human activities, domestic animals, and other stressors related to the Project. As a result, the Project could cause the loss of one or two pairs of harriers from the site.

The Alameda song sparrow, Bryant's savannah sparrow, and San Francisco common yellowthroat nest primarily in marsh habitat that will be subject to minimal direct impacts by the proposed Project. Some nesting habitat for these species may be lost in seasonal wetlands, coastal scrub, and ruderal habitats, and possibly in the auto wrecking yard detention basins (if these species breed there at all), but because these habitats are not favored by nesting pairs of these species, very little breeding habitat for these species will be lost. Some foraging habitat for these species will be lost due to conversion to developed land uses, and individuals of these species in preserved marshes on-site and in Mowry Slough are likely to be disturbed by construction, human activities, domestic animals, and other stressors related to the Project. However, because the vast majority of suitable breeding habitat for these species has been avoided by the Project, the proposed development is expected to result in declines in local populations of only a few pairs of each species.

A few nests of these species could be lost during the clearing and construction phases of the Project. Although adults are mobile enough to avoid direct injury or mortality, eggs or young could be lost due to direct habitat impacts or indirect disturbance that causes nest abandonment. After construction has been completed, nests in preserved habitat adjacent to the proposed golf course or residential development could be disturbed to the extent that the nest is abandoned or unsuccessful. Maintenance activities around the golf course and residential areas, or golfers and residents who enter natural areas, may unintentionally disturb or destroy nests. Although the Project does not include the establishment or improvement of any formal trails along Mowry Slough, the number of people and domestic animals expected to access the levee along Mowry Slough will be greater following Project development, subjecting pairs of these species nesting along Mowry Slough to more disturbance.

If on-site mitigation for impacts to wetlands, waterbird foraging habitat, and special-status species habitat is provided per measures to mitigate other Project impacts, such mitigation will increase the extent and quality of nesting and/or foraging habitat for these special-status species, ameliorating the Project's adverse effects to some extent.

The number of pairs of these species that would be disturbed or displaced due to Project activities represents a small fraction of the regional populations of these species. As a result, the Project's impacts do not meet the CEQA standard of having a *substantial* adverse effect on these species' populations. Although the loss of active nests for the bird species would be in violation of federal and state laws (see section below entitled *Compliance with Additional Laws and Regulations*), impacts to these species and their habitat would not be considered a significant impact under CEQA.

**Project Area 3.** This alternative will result in the loss of up to 71.9 ac of upland agricultural habitat for these special-status animal species. Residential development in Area 3 could also result in indirect impacts to these potentially breeding special-status species through increased human use of levees adjacent to habitat of these species in Area 4 (as discussed in *Impacts to Sensitive Habitats and Species from Recreational Disturbance* below).

Domestic pets, cats in particular, may stray from the residential areas in Area 3 and may depredate these potentially breeding special-status species or their nests. Non-native mammals such as house mice and black and Norway rats, as well as urban-adapted natives such as raccoons, are likely to increase in the Project vicinity (including on Area 3) following development. These species may compete with or prey on some of these special-status species.

**Project Area 4.** This alternative will result in the loss of up to 285.4 ac of habitat for these special-status animal species, including 43.0 ac of ruderal herbaceous habitat, 154.6 ac of upland agricultural habitat, 2.2 ac of coastal scrub, 5.5 ac of aquatic habitat, 78.0 ac of seasonal wetlands, 0.9 ac of brackish marsh, and 1.2 ac of wrecking yard detention basins.

Domestic pets, cats in particular, may stray from the Project's residential areas and may depredate these potentially breeding special-status species or their nests. Non-native mammals such as house mice and black and Norway rats, as well as urban-adapted natives such as raccoons, are likely to increase on the Project site following development. These species may

compete with or prey on some of these special-status species. As discussed below under *Impacts to Sensitive Habitats and Species from Recreational Disturbance*, golfers and recreational users of the ACFCWCD and Mowry Slough levees may disturb, crush, or degrade habitat for these species. Planting of trees within the golf course or residential areas will provide additional perches and nesting sites for raptors that may prey on these special-status species.

### **Impacts to California Tiger Salamanders**

There are no records of the California tiger salamander occurring on the Project site. The closest known California tiger salamander breeding site is approximately 0.8 mi from the Project site and 1.2 mi from the nearest Project impact area, which is near the maximum known dispersal distance for the species.

According to the Final Rule for listing the central population of the California tiger salamander as threatened under the federal Endangered Species Act (Service 2004a), “Adult California tiger salamander have been observed up to 1.3 mi from breeding ponds (S. Sweet, University of California, Santa Barbara, in litt. 1998), which may be vernal pools, stock ponds, or other seasonal or perennial water bodies.” However, Dr. Sweet has confirmed to H. T. Harvey & Associates that this distance was incorrect; the individual salamander to which this report referred was actually 0.9 mi from the nearest pond, and 1.05 mi from the pond to which Dr. Sweet thought the salamander was traveling (Dr. Sam Sweet, pers. comm. to J. Wilkinson, 10 February 2006, and to S. Rottenborn, 28 April 2006). California tiger salamander at Stanford University have been recorded up to 1.0 mi from their breeding pond (Dr. Alan Launer, pers. comm. to Steve Rottenborn, 24 February 2006), and Austin and Shaffer (1992) reported dispersal distances of at least 1.0 mi. Trenham et al. (2001) observed a high probability of adult California tiger salamander dispersing between pools up to 2198 ft apart but did not observe dispersal events longer than 2297 ft. Trenham and Shaffer (2005) estimated 50, 90, and 95% of adult California tiger salamander were within 492, 1608, and 2034 ft of their study pond, respectively, and that 95% of juvenile California tiger salamander were within 2067 ft of the pond, with 85% concentrated between 656 and 1969 ft, but none were found at 2625 ft. However, Orloff (2007) reported longer-distance dispersal by a few individuals in a population in Pittsburgh, Contra Costa County; her results suggested that some individuals may be traveling up to >1.3 mi from aquatic breeding habitat to upland aestivation habitat. Collectively, these studies suggest that dispersal distances may vary among populations and/or sites; that California tiger salamander abundance likely decreases with increasing distance from a breeding pond; and that a few individuals may disperse 1 mi or more from breeding areas. Based on the results of these studies, a portion of Area 4 is within the maximum known dispersal distance of the nearest breeding area, but the likelihood of dispersal or number of dispersants over such a distance is very low. Furthermore, the railroad tracks would likely inhibit dispersal between known breeding sites and the Project site to some extent.

Based on the negative results of larval surveys on the Project site, and more importantly the negative results of annual larval surveys conducted in higher-quality vernal pools on the adjacent Stevenson unit of the Pacific Commons Preserve since 2004 (WRA 2006, Meg Marriott, pers. comm.), it appears that tiger salamanders do not breed on or immediately adjacent to the site. Due to the heavily cultivated nature of the fields on the site, upland habitat for the tiger

salamander is restricted to ruderal field edges with small mammal burrows, if tiger salamanders were to occur on the site. In combination, the long distance between the Project's impact areas and the nearest known occurrence of the species (approximately 1.2 mi), the negative results of fairly intensive larval surveys in potential breeding habitat on and adjacent to the site, and the limited extent of suitable upland habitat for the species on the site indicate that there is a low probability of tiger salamander occurrence in the Project area. In the unlikely event that tiger salamanders occur on the site, the Project would affect very low numbers of individuals and very limited, low-quality habitat. Given that there is no history of use of the Project site or immediately adjacent areas by California tiger salamanders and no evidence that the species is currently present, the Project's impacts do not meet the CEQA standard of having a *substantial* adverse effect on regional populations of the species, and Project impacts are thus less than significant. In the unlikely event that take of a tiger salamander is expected to occur, Federal Endangered Species Act consultation with the USFWS would be necessary to obtain incidental take approval.

**Project Area 3.** Given the very long distance between areas of known occurrence and the areas of proposed development on Area 3, coupled with impediments to dispersal imposed by buildings, roads, and curbs between known tiger salamander breeding locations and the proposed development area, no California tiger salamanders are expected to be impacted by Project activities in Area 3.

**Project Area 4.** There is no history of use of the Project site or immediately adjacent areas by California tiger salamanders and no evidence that the species is currently present on the site. In combination, the long distance between the Project's impact areas and the nearest known occurrence of the species (approximately 1.2 mi), the negative results of fairly intensive larval surveys in potential breeding habitat on and adjacent to the site, and the limited extent of suitable upland habitat for the species on the site indicate that there is a very low probability of tiger salamander occurrence in the Project's impact areas on Area 4.

### **Impacts to Wildlife Movement**

The Project area is surrounded by development to the north and east and salt production ponds to the northwest and west. Salt ponds and urban development prevent any substantive movement of terrestrial wildlife such as mammals, reptiles, and amphibians to or from the northwest (i.e., in the direction of the Refuge headquarters and Coyote Hills Regional Park). Likewise, extensive urban development to the north and east prevent movement of these species between the site and the undeveloped hills nearly 5 mi to the east. The only connectivity to open, upland wildlife habitat (including the Pacific Commons Preserve, Tri-Cities Landfill, and the Warm Springs unit of the Refuge) occurs to the southeast. However, the upland habitat areas southeast of the site are limited in size and isolated from extensive open space habitat (e.g., east of Interstate 880) by urban development. As a result, any movement by mammals, reptiles, and amphibians through the Project site would facilitate exchange of individuals or genes only very locally, along the immediate edge of the Bay in the Fremont-Newark area, and would have no regionally important implications (e.g., for interchange of individuals or genes among populations).

The most important avian habitats on the Project site are the perennial wetlands in the former Pintail Duck Club, with seasonal wetlands receiving relatively little use by waterbirds based on our observations to date. Although the loss of some seasonal wetlands due to filling, and reduction in the use of some seasonal wetlands that will be surrounded or nearly surrounded by residential development, will result in the loss of some potential waterbird habitat, the Project is not expected to have a substantial effect on avian movements, either regionally or at larger (e.g., flyway-level) scales.

The ACFCWCD channels that flow into Mowry Slough, and Mowry Slough itself, represent the primary aquatic movement pathways on and in the vicinity of the Project site. The Project site will not disrupt these pathways, and thus will have little (if any) effect on movement by aquatic species.

Because the site is isolated and surrounded by land uses that limit wildlife movement, development of the site will not have a significant impact on the movement of wildlife regionally. Within the immediate Project area, the footprint of the Project will limit the movement of animals within the site, but wildlife will still be able to move through undeveloped areas and, to some extent, through the golf course.

**Project Area 3.** The portion of Area 3 to be developed by this Project currently serves little value to dispersing wildlife since it is surrounded on three sides by development and is occupied by intensively cultivated fields providing little cover and no water. As a result, development in the northeastern corner of Area 3 will have little effect on wildlife movement.

**Project Area 4.** Although Area 4 supports important aquatic habitats, particularly in the former Pintail Duck Club, these habitats have little connectivity to off-site aquatic habitats (from the perspective of aquatic species movements) since water southeast of ACFCWCD Line D has to be pumped into Mowry Slough and water northwest of Line D enters Mowry Slough through a one-way culvert. The proposed residential area footprint will reduce the available connected habitat areas and constrict the corridors between them. The golf course, should it be built, will allow wildlife to traverse most of the northern portion of Area 4. However, as under existing conditions, the ACFCWCD Line D will continue to impede wildlife, and northwest/southeast wildlife movement must be at levee connection points. The Project may reduce the ease with which wildlife can move between portions of Area 4 that are not developed and areas to the southeast, but extensive areas along the western and southern sides of Area 4 will not be developed as part of this Project, and wildlife would still be able to move through these areas. As a result, development of Area 4 will not result in a substantial reduction in regional, biologically important wildlife movements.

## **EFFECTS FOUND TO BE LESS-THAN-SIGNIFICANT WITH MITIGATION**

In our discussion of the following impacts, the general nature of each impact is described first, followed by a brief discussion of the extent of the impact within each of the two Project Areas (3 and 4).

## **Permanent Loss of Seasonal Wetland, Aquatic, Freshwater Marsh, Brackish Marsh, and Detention Basin Habitat**

As previously described, H. T. Harvey & Associates' biologists surveyed the Project site for wetland habitats and completed a formal wetland delineation that has been verified by the USACE (File # 2006-400075S). The extent and distribution of the various aquatic and wetlands habitat types are shown on Figure 4.

H. T. Harvey & Associates ranked the value of various wetland, aquatic, and upland habitats on the site based on the hydrology, floristic composition, level of on-going disturbance through agricultural use, and observed levels of use by wildlife species (H. T. Harvey & Associates 2006a). These rankings were used to guide decisions regarding where the golf course and residential areas should be planned, so as to avoid direct impacts to the highest-quality habitats. Most of the seasonal wetlands, aquatic habitats, and muted tidal salt marsh that will be directly filled by this Project were determined to be of poor or marginal quality, primarily due to intensive agricultural disturbance and the resulting effects on plant communities and wildlife use.

Seasonal wetlands, even in agricultural areas, have been increasingly lost to development in the South Bay (LSA Associates 1989, Goals Project 1999). Open, moist field habitat that was historically used as alternate foraging habitat for shorebirds during high tides (when favored intertidal foraging habitat was inundated) has also declined. Although salt ponds currently serve as surrogates for these seasonal wetlands from the perspective of high-tide use by shorebirds, planned restoration of at least some salt ponds in the South Bay by the South Bay Salt Ponds Restoration Project (which does not include the Newark salt ponds closest to the site) may reduce the extent of such salt ponds, albeit while enhancing other ponds for shorebird use.

In addition to wetland, marsh, and aquatic habitats that will be filled directly, indirect impacts to wetlands in several areas may be great enough so as to result in the functional loss of these habitats. For the purpose of this impact assessment, we assumed that all areas within the potential development envelope could be impacted. In reality, future development will not occupy the entire development envelope, and efforts will be made to avoid wetlands and other sensitive habitats to the extent practicable. Actual wetland impacts will be determined when specific development and grading plans are proposed. At that time, some wetland/aquatic habitats that will not be filled by the Project may still be considered fully impacted by the Project due to the level of disturbance associated with development activities that is expected to occur, as well as the potentially small or isolated nature of remaining features (which allows no buffer from such disturbance).

Construction of Project features (should the area labeled as "Golf Course or Open Space" in the northern portion of Area 4 be developed as a golf course) may also result in the fill of 1.2 ac of non-jurisdictional stormwater detention basins in the auto wrecking yards in Area 4. These areas, which were not claimed as jurisdictional by the USACE due to their artificial source of hydrology, provide very limited habitat quality due to disturbance and contamination from runoff from the auto wrecking yards, but do provide some wetland functions and values.

Given the declines in regional availability of seasonal wetland habitat around the South Bay, the loss of wetland, marsh, and aquatic habitats as a result of the Project would be significant without implementation of mitigation.

**Project Area 3.** No seasonal wetland, aquatic, freshwater marsh, brackish marsh, or detention basin habitat occurs within the proposed Project footprint within Area 3. Therefore, proposed development in Area 3 will result in no impacts to these habitat types.

**Project Area 4.** Assuming impacts to the entire potential development envelope depicted in Figure 2, up to 78.0 ac of seasonal wetland, 5.5 ac of aquatic, 0.9 ac of brackish marsh, and 1.2 ac of detention basin habitat could be directly lost through grading, fill, and construction of Project elements in Area 4.

The following mitigation measures will reduce these impacts to a less-than-significant level.

**Mitigation Measure 1A. Avoid or Minimize Impacts to Wetland and Aquatic Habitat.**

Temporary disturbance to and permanent loss of all wetland and aquatic habitat in Area 4 will be avoided to the maximum extent feasible. All temporary staging areas and construction access roads, if necessary, will be located away from seasonal wetland habitat to the extent practicable, and wetland and aquatic habitats abutting development areas will be clearly demarcated with Environmentally Sensitive Area fencing to avoid inadvertent disturbance during construction activities. As detailed grading plans are prepared, they will be designed to avoid permanent impacts to wetland and aquatic habitats to the extent practicable.

**Mitigation Measure 1B. Create and Enhance Seasonal Wetland Habitat On-site and/or Off-site Acquisition of Existing Wetland Habitat.**

To offset impacts to the wetland and aquatic habitat present on the site, the Project proponent will utilize a combination of on-site wetland creation and enhancement, and/or acquisition of existing wetlands located off site. The on-site component of the mitigation will include creation of wetland and aquatic habitat within upland habitat that is currently disked and graded within Area 4 and will enhance portions of the remaining areas of agricultural field/seasonal wetland habitat within Area 4, as described below.

Compensatory mitigation for impacts to these habitats shall be provided by creating high quality wetland and aquatic habitat on the site within upland habitat at a ratio of 1:1 (habitat created/enhanced: habitat impacted) to prevent any net loss of habitat functions or values. In addition, seasonal wetland habitat that is currently within agricultural production (mapped as agricultural field/seasonal wetland habitat) will be enhanced at a ratio of 0.5:1 for all impacts to seasonal wetland habitat. Enhancement will include cessation of farming activities, seeding, and may include minor earth moving activities. To clarify, any impacts to seasonal wetland habitat will be mitigated at a total of 1.5:1 (habitat created and enhanced: habitat impacted). While the functions and values provided by the impacted habitat may differ based upon existing conditions, we feel that this approach adequately mitigates for impacts to very low-quality habitat (the majority of impacts) with high quality seasonal wetland habitat and compensates for the temporal loss of high-quality habitat (likely to be very minor impacts) by the creation of high-quality wetland habitat and the enhancement of existing low-quality wetland to high-quality habitat. By replacing impacted wetland habitat with that of an equal (for impacts to high quality habitat) or higher quality (for impacts to degraded habitat) and enhancing the existing, degraded

seasonal wetland habitat for impacts to seasonal wetland habitat, the Project will achieve no net loss of wetland acreage (i.e., jurisdictional wetlands lost to fill will be replaced by creation of wetlands in upland areas at a 1:1 ratio) while providing a substantial increase in wetland functions and values.

Due to the currently degraded condition of the cultivated seasonal wetlands on the Project site, simple cessation of farming in these wetlands would achieve a net increase in wetland functions and values. However, substantially greater benefit could be achieved if the mitigation (both for this impact and other impacts such as *Indirect Project Effects on Waterbird Use of Wetlands*, as described below) included some contouring to provide a variety of hydrologic regimes, depths, and habitat types. Because the achievable wetland enhancements cannot be known at this time (due to decisions that have yet to be made concerning detailed grading and the footprint of the golf course), a detailed wetland design cannot be prepared.

A detailed mitigation plan will be developed by a qualified biologist under contract to each Project proponent for individual projects which result in direct impacts to wetland habitats. This plan will be submitted to and approved by staff of the City of Newark prior to the initiation of grading within wetlands. It will include a plan view graphic showing the target mitigation activities, a brief seeding plan (species palette and application techniques) to re-vegetate the areas currently in agricultural production, and a monitoring and reporting plan with success criteria. The plan will include a recommended timeline for mitigation activities and the establishment of seeded native species. The mitigation work will begin in the same construction season as the initiation of grading within wetlands or aquatic habitats, and mitigation site grading will be completed within one year of initiation (or as otherwise determined by resource agency permits). Potential additional impacts to biological resources which may result from implementation of specific mitigation measures, to create and enhance wetlands have been considered during preparation of this document. It is our conclusion that no additional impacts, of a significant level, will occur to any biological resources currently existing within the cultivated seasonal wetlands during these activities. All created/enhanced habitats will be protected in perpetuity and will be placed into a land trust or under a conservation easement, or fee title will be transferred to the Refuge or a third-party non-profit entity that has been approved by the City and appropriate permitting agencies.

Alternatively, at the discretion of the project proponent, and as approved by the staff of the City of Newark, all or a portion of the mitigation requirements for impacts to seasonal wetland habitats, will be satisfied through the acquisition and set-aside of existing wetlands at a ratio 1.5:1 (existing habitat: habitat impacted) at an approved wetland mitigation bank (i.e. off site) or other private lands. These off-site locations shall currently support wetlands of sufficient quantity and quality to satisfy mitigation requirements. The off-site component of the wetland mitigation will occur on lands located within 10 air miles of the current project site and will be located along the eastern shore of south San Francisco Bay within the same geographic watershed.

## **Impacts of Alteration of Site Hydrology on Avoided Wetlands and Associated Species**

The Project is expected to affect hydrology by 1) increasing impervious surfaces and thereby increasing the rate and amount of runoff entering undeveloped areas, 2) decreasing the amount of water entering undeveloped areas with the addition of the golf course features that will most likely retain additional water through the evapotranspiration of large expanses of grass, and 3) adding nuisance flows into undeveloped areas during the dry summer months. These hydrologic alterations could affect the wetland and marsh habitats that will not be directly filled during site development.

Currently, wetland habitat on the site is influenced by groundwater, seeps, and incidental rainfall. Particularly within the areas proposed for residential development in Areas 3 and 4, hydrology is mainly influenced by incidental rainfall, and excess water moves by sheet flow across the relatively flat surface. In the portion of Area 3 where development is proposed by this Project, runoff flows to a concrete-lined ditch at the southern edge of the agricultural fields, then flows westward into ACFCWCD Line D. In Area 4, the vast majority of rainfall remains on-site within extensive, shallow topographic depressions. In Area 4, water moves through the site in a southerly direction, draining from upland areas to adjacent ditches and from low points within seasonal wetland habitat to lower wetlands, saturating soil within the disked layers of clay. Eventually this water enters one of the ACFCWCD channels, an agricultural ditch, or the ditch that surrounds the western portion of this field and is pumped into Mowry Slough. As stated above, hardscape associated with the proposed Project features will likely increase the amount of stormwater runoff from developed areas.

The addition of impervious surfaces through the construction of buildings, driveways, and access roads (“hardscape”) and the compaction of soil within the Project site will result in significant changes in the amount, location, and velocity of stormwater runoff flowing into existing wetland habitat, agricultural ditches, or into the ACFCWCD channels that is subsequently pumped into Mowry Slough and the San Francisco Bay. In areas where the Project will construct hardscape features, water falling onto the site will no longer infiltrate the soil or move as sheet flow through the soil (a.k.a. interflow) over the compacted clay layers within the plow layer (Ward and Trimble 2004) southward through the site. Rather, water will move over these impervious surfaces to be collected in storm drains. Water quality treatment of the stormwater will be required; however, the type and location of treatment is unknown at this time (see *Potential Impacts to Long-term Water Quality* below). Collection of runoff for treatment will result in a concentration of the volume of water from the development area to discharge locations. If re-routing of stormwater flows and concentration of discharges diverts water away from natural seasonal wetland habitats that will remain on the site, the amount of water available to sustain these remaining wetlands will be reduced. Stormwater discharged into natural habitats at concentrated locations would, through an increase in the velocity and volume of water, increase the likelihood of soil erosion and the subsequent channelization of natural habitat on the site (including upland habitat and seasonal wetland habitat, depending on the placement of discharge points) and could increase (by the addition of water volume) or decrease the water level of seasonal wetlands (by erosion changing the overflow elevations or decreased water volume). Changes in the preserved natural habitats may be substantial.

In contrast to the addition of hardscape features that the Project proposes, the potential golf course feature in Area 4 will require grading and the planting of turf grasses which will intercept precipitation, likely decreasing the amount of water entering natural habitats. Under its existing cultivated condition, this area is disked and left unvegetated for much of the year. With planted, year-round turf grass, uptake of water and transpiration will occur throughout the year. In addition, aside from the large amount of water that these grasses will process, the surface area of the grass blades will intercept and retain falling water, in some cases up to 25% of the precipitation annually (Ward and Trimble 2004). In small storms, precipitation may not even enter the soil. While the amount of water entering natural habitats may decrease slightly, it is not likely that, for the proposed golf course, the location and velocity of water entering natural habitats will change substantially from existing conditions as little hardscape is planned within the golf course (clubhouse, parking lot, and maintenance facility) and habitats adjacent to the golf course are fed by groundwater rather than surface runoff. However, the direction of surface flow after grading and the location of discharge of waters collected by storm drains could change and if concentrated could cause erosion and channelization, impacts that are potentially substantial.

In addition to the amount and location of rainwater entering natural habitats from the proposed development and golf course features, the temporal availability of water will most likely be altered, particularly in the summer. During this season, the only existing sources of water are the freshwater seeps (groundwater) located in the central portion of Area 4 and water within the ACFCWCD channels. However, following development, landscape watering both in residential areas and the golf course could provide excess water that runs off into storm drains or adjacent habitat areas (termed nuisance flow). During the winter months, it is likely that additional water from nuisance flows will be negligible when combined with winter rainfall input to the site. However, with the addition of the proposed golf course and residential landscaping, additional sources of water will result in nuisance flows to natural habitat areas during the summer months.

In the absence of mitigation measures, these combined effects of the Project on the amount, location, velocity, and timing of water movement on the site will likely alter the character, quality, and distribution of natural habitats surrounding Project features. Any reduction in the amount of water entering seasonal wetland or marsh habitats (i.e., through diversion of stormwater runoff) could reduce the hydroperiod and ponding depth of these wetlands, altering their functions and values for plants and animals. Additional water moving into natural habitat may result in seasonal wetland habitat becoming perennial wetland habitat after Project implementation. In addition, this greater amount of water flow may be concentrated in fewer areas and/or smaller areas, causing erosion and channelization resulting in the creation of perennial aquatic habitat in channels in what is currently upland habitat or seasonal wetland habitat. In seasonal wetlands that are surrounded by development, an increase in hydroperiod is not necessarily an adverse effect, as it would help to maintain some waterbird use in these areas. As described below under *Indirect Effects on Waterbird Use of Wetlands*, wildlife use of these seasonal wetlands will likely decline once these wetlands are surrounded by or immediately adjacent to developed areas, especially under Alternative A. However, maintaining a longer hydroperiod will allow those animals that are tolerant of indirect human disturbance and proximity of their habitats to developed areas to make greater use of these wetlands, throughout more of the year.

**Project Area 3.** Residential development proposed in Area 3 may affect the amount, location, velocity, and timing of water entering the ACFCWCD Line D. However, it is unlikely that these hydrologic input changes would affect wetland habitat downstream of Area 3. In addition, although this area is proposed to be residential, as much as 50% of the site may not include any hardscape as areas may be landscaped or may be parkland.

**Project Area 4.** Residential and/or golf course development proposed in Area 4 may affect the amount, location, velocity, and timing of water entering natural habitats adjacent to the Project's developed areas, potentially resulting in the reduction of the extent of existing seasonal wetland habitat. However, much of the proposed development may be golf course or landscaping which will not impact site hydrology through the introduction of hardscape.

Depending on the location of development, seasonal wetland habitat may no longer be actively farmed, particularly areas of seasonal wetland and brackish marsh adjacent to the area that may be developed into a golf course, or "islands" of seasonal wetland habitat that will be preserved within development. The increased quantity and velocity of water entering these seasonal wetland islands may cause these seasonal wetlands to pond for longer duration, changing the dominant vegetation and perhaps creating areas of open water. Conversely, if runoff is diverted around these wetlands, they could be hydrologically "starved". In addition, as these features fill and spill into upland habitat adjacent to these wetlands, erosion or channelization may occur if outfalls and transition culverts are not correctly placed, converting upland or seasonal wetland habitat into aquatic habitat. Nuisance flows from the proposed golf course may reduce the salinity of the diked salt marsh or the muted tidal salt marsh, potentially converting these areas to seasonal wetlands or freshwater marsh and reducing the amount of aquatic habitat and thereby also reducing or altering special-status species habitat.

Although unlikely to be a substantial change because the areas near the golf course are supported by groundwater seeps, less water entering natural areas from the golf course than currently occurs under existing conditions may slightly de-water surrounding natural habitats, resulting in a lesser amount of seasonal wetland habitat occurring near the golf course. The addition of nuisance flows during the summer months may directly influence the germination and growth of new species in natural habitats, particularly non-native species adapted to pulses of water during any season, which may convert existing, natural habitat to ruderal habitat of the same type. Summer nuisance flows that increase the amount of freshwater input to saline or brackish marshes can convert these marshes to fresher water marshes (see *Effects of Fresh Water Inputs on Salt Marsh Habitat* below), altering habitat for plants and animals. A reduction in the extent or hydroperiod of wetlands due to diversion of runoff would have potentially significant impacts on the habitats, vegetation, and wildlife.

Most special-status wildlife species on the Project site make little use of the cultivated seasonal wetlands on the site, and changes in the hydrology of cultivated seasonal wetlands is therefore expected to have little effect on special-status species. Rather, well-vegetated wetlands and marshes, and those providing extensive open water (such as the former Pintail Duck Club) provide much greater habitat functions and values to special-status species. These higher-quality habitats are less susceptible to adverse effects of changes in hydrology as a result of the Project

because (a) the residential area on Area 4 does not drain to the Pintail Duck Club, and (b) the primary source of hydrology (groundwater seepage from an aquifer discharge point, rather than groundwater that is derived from percolation of local precipitation) for the Pintail Duck Club will not be adversely affected by the Project. Nevertheless, it is possible that hydrologic changes resulting from the Project, possibly including nuisance flows from the golf course, could have minor effects on the Pintail Duck Club area. These effects could impact special-status species such as the salt marsh harvest mouse, salt marsh wandering shrew, Alameda song sparrow, Bryant's savannah sparrow, and San Francisco common yellowthroat. In addition, if special-status plants such as the alkali milk-vetch, Congdon's tarplant, Delta woolly-marbles, Hoover's button-celery, prostrate vernal pool navarretia, brittlescale, San Joaquin spearscale, and Contra Costa goldfields are present in areas of the former duck club's marsh that were inaccessible to our biologists during rare plant surveys, there is some possibility that changes in hydrology could affect these species as well. Changes in hydrology that result in a degradation of habitat for these special-status species would be considered a significant impact.

It should be noted that any on-site wetlands created or enhanced as mitigation for impacts to seasonal wetland habitat or wildlife use will no longer be disked and farmed. As the existing agricultural manipulation ceases, the size, shape, relative quality, and ponding duration of seasonal wetland features will likely change. It has been our experience, in similar sites with similar clay soils, that under continued agricultural practices, namely plowing/disking, soils become relatively less dense and unconsolidated, and soil interspaces become inundated with water, but only within the plow layer of the soil profile. Lower layers in the soil profile, below the plow layer, will remain dry, sealed clay, forcing water to move sub-surface to an outlet (in this case, one of the agricultural ditches on the site and then pumped into Mowry Slough). We have also observed that, in clay soils, after these agricultural practices are discontinued, soil structure returns (after numerous years), and what were observed to be large areas of seasonal wetland habitat with indistinct boundaries becomes small, discrete pools and vernal swales that hold water for longer duration and are surrounded by upland habitat with a very clear, distinct boundary. For these reasons, natural habitats outside of the proposed Project features may change in addition to, or in spite of, Project alterations of site hydrology. While the amount, location, or velocity of water entering natural habitats may either increase or decrease the duration of ponding in seasonal wetland habitat under existing conditions, because seasonal wetland habitat will not be disturbed continually by agricultural practices in mitigation areas, seasonal wetland habitat in these areas will likely become more defined, with smaller seasonal wetland habitat connected by defined swales. As such, areas that are no longer disked are likely to convey water more easily through these swales to discrete wetland habitat. Because this "recovered" wetland habitat could potentially move greater quantities of water more quickly than currently occurs, the effects of the Project on hydrology on remaining natural habitat may be ameliorated somewhat by the cessation of farming.

The following mitigation measures will reduce impacts to natural habitats in Area 4 related to the alteration of site hydrology to a less-than-significant level.

**Mitigation Measure 2A. Avoid or Minimize Impacts to Wetland and Aquatic Habitat.** All facilities that may be constructed as part of the proposed golf course (clubhouse, parking lot, and maintenance facility) will be constructed away from wetland and aquatic habitat to the maximum

extent feasible. As detailed development plans are prepared, they will be designed to avoid permanent impacts to seasonal wetland to the extent practicable.

**Mitigation Measure 2B. Minimize Changes to Hydrology by Avoiding Single-point Sources of Water to Wetland Habitat.** To minimize changes in hydrology on the surrounding natural habitats, particularly seasonal wetland habitat, sheet flow and interflow in Area 4 will be simulated to the maximum extent feasible to avoid the erosion and channelization effects that will most likely result from having a single-point source of water discharging from the proposed development. Rather, simulation of natural flow through a more dispersed discharge of collected runoff will be emphasized for movement of water from hardscape within Project features into wetlands surrounded by or adjacent to development such that the existing hydrologic condition is not substantially changed.

Specifically, for each of the seasonal wetlands to be preserved, stormwater runoff and nuisance flows shall be designed to incorporate grassy swales, retention basins and energy dissipators to control discharge velocities in order to prevent erosion of the existing substrate at the discharge point within wetlands and to prevent channelization. Channel erosion at each of the outfall discharge points draining into seasonal wetlands will be monitored annually for the first five years. If any channel erosion is noted, remedial measures will be taken to incorporate additional suitable water control structures to prevent further erosion. Once these remedial measures are implemented, the five year monitoring phase will be restarted at that location. For every seasonal wetland to be preserved that fronts the development envelope and is smaller than 1.0 acre, as shown on the habitat map (Figure 4), there will be at least one discharge point of stormwater flows and nuisance flows. For wetlands greater than 1.0 acres there will be a minimum of 3 discharge points separated by no less than 200 feet and these points shall be situated along the upslope perimeter of the wetlands.

**Mitigation Measure 2C. Avoid Inadvertently Draining Wetlands by Inappropriate Grading or Sizing of Culverts.** After Project construction, any wetlands that will be isolated from surrounding wetland habitat by development may become drained or may begin to pond water, becoming open water detention basins, if culverts are inappropriately sized or positioned. To prevent the conversion of these areas to open water detention basins, or to prevent them from being drained too quickly through improper grading and positioning of culverts, grading and culvert installation in Area 4 will be planned and implemented carefully to ensure adequate drainage without draining wetlands more quickly than currently occurs. Appropriately-sized culverts connecting the seasonal wetlands to the remaining wetland areas will be placed under the proposed development (e.g., roads) at a level that will allow water to pond to a similar depth and for similar duration as currently exists on the site. After the Project is constructed, proper culvert placement will allow water to pond for durations similar to the current existing condition.

**Mitigation Measure 2D. Use Native Grass Species on the Proposed Golf Course.** To prevent any significant decrease in the amount of water entering preserved wetland habitats on the site during the winter months, native grass species will be used to the extent practicable in the proposed “links” golf course (a coastal golf course with no water features that utilizes natural hazards), should it be built. These native species would use less water than non-native grass species typically used on golf courses, and are often perennial. As a bonus native grasses would

improve the function and value of grassland habitat within the potential golf course. The University of California Integrated Pest Management Plan ([www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu)) states “When turf grass species are planted in areas where they are not well adapted, they require greater care (e.g. management skills and resources) to grow and maintain and are more susceptible to invasion by weeds. Irrigation, mowing, and fertilization requirements vary for each turf species and must be carefully followed to maintain their competitive edge against weed invasions.” By using these native grass species, any decrease in the amount of water entering natural areas from the golf course area would be minimized. Under existing conditions, several native grass species occur on the site, including saltgrass, and, Calflora ([www.calflora.org](http://www.calflora.org)) lists numerous native grass species that could occur in Alameda County in similar habitat types as occur on the Project site, including numerous species of blue grama (*Bouteloua gracilis*), wheatgrass (*Elymus* spp.), hairgrass (*Deschampsia* spp.), barley (*Hordeum* spp.), and fescue (*Festuca* spp.). A species list for use on the golf course (including outside of the turf area) will be developed by a qualified biologist in concert with golf course designers and approved by the City of Newark.

**Mitigation Measure 2E. Incorporation of Design Features to Duplicate Existing Hydrologic Conditions.** During detailed design of development in Area 4, including the potential golf course and residential areas, features that will duplicate existing hydrologic conditions will be incorporated. Such features may include the use of grassy swales to treat runoff and allow water to infiltrate into the soil; the use of surface materials to allow for infiltration on private property (including permeable driveway material); and the retention of water on the site, when possible.

**Mitigation Measure 2F. Limit Dry-Season Nuisance Flows Generated by Project Development by Conserving Water.** Nuisance flows from the Project will be minimized and controlled to reduce their input into the remaining natural habitat during the dry season. This will minimize the conversion of habitat types from the existing condition and also minimize the germination of new species, particular weed species. Water use will be limited to the minimum necessary for the proposed golf course and landscaping, including that under private ownership, to decrease summer nuisance flow to negligible amounts and approximate the existing condition. Planting drought-tolerant plant species within landscaped areas, including private lawns, which do not require water during the summer months will minimize the watering necessary and hence minimize nuisance flows. Where this is not feasible, proper irrigation using only the amount of water that can be taken up by the plants will be implemented. In addition, water should be applied at dawn to limit evaporation, thereby limiting the amount of water that must be applied and reducing the possibility of over flow from the site as evapotranspiration takes place during the day. These measures will be implemented to minimize any perennial ponding within the existing seasonal wetlands. The University of California Integrated Pest Management Plan ([www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu)) recommends the following to maximize irrigation efficiency:

- Irrigate deeply, but infrequently.
- Irrigate early in the morning. At this time water loss from evaporation is minimal, distribution is usually good because of good water pressure and limited wind, and the risk of disease development is reduced.

- Avoid runoff by matching water application rates to soil infiltration rates (rate water enters soil) or by pulsing (i.e., applying a portion of the water, waiting for it to be absorbed in the soil, and then applying the next portion).
- Use less water in shaded areas than in open sun.
- Remove thatch in spring if it is more than 0.5 inch thick.
- Do not over fertilize; fertilize moderately according to the individual species and location.

**Mitigation Measure 2G. Retain Nuisance Flows on the Site.** Any remaining dry-season nuisance flows will be retained within the development footprint by grading the site to drain internally, particularly within the golf course area, or by constructing berms or swales to confine these flows to the site to infiltrate or evaporate rather than flowing overland to salt marsh habitat.

### **Effects of Fresh Water Inputs on Salt Marsh Habitat and Associated Species**

The proposed Project may result in increased inputs of fresh water from development areas to the surrounding, existing salt marsh habitat particularly to diked salt marsh habitat in the west-central portion of Area 4, muted tidal salt marsh habitat located near the existing auto wrecking yard, and, potentially, tidal salt marsh habitat located within Mowry Slough that provides habitat for special-status species such as California clapper rails, California black rails, salt marsh harvest mice, harbor seals, several special-status fish, and others. The dominant plant species of salt marshes in the South San Francisco Bay include pickleweed, as observed on the Project site. Pickleweed is a salt-loving plant (halophyte) that typically grows in areas of high salinity where few other plant species can grow. However, other species quickly out-compete pickleweed in soil substrates with lower salinity levels. Pickleweed-dominated salt marsh provides habitat for a unique assemblage of animal species including the salt marsh harvest mouse and salt marsh wandering shrew.

Currently, little or no nuisance flows from the proposed development areas contribute directly to habitat types on the Project site. With Project implementation, additional nuisance flows will increase the amount of fresh water moving into sensitive habitat types. While the increased freshwater input from nuisance flows will likely be negligible during the winter months when rainfall events input a far greater amount of freshwater to these habitat types, during the summer months, when little or no nuisance flows currently enter the site, freshwater inputs could prove great enough to convert some salt marsh habitat on the site to brackish or freshwater marsh habitat types. In addition, the increase in impervious surface resulting from residential development could result in reduced infiltration and increased amounts of fresh runoff into existing salt marsh habitat. While such runoff would occur during the wet season when precipitation already introduces fresh water into salt marsh habitats on the site, the additional volume of runoff could potentially contribute to the conversion of salt marsh habitat to brackish or freshwater habitat.

Research has shown that a number of variables control the distribution of plant species in coastal marshes. The most obvious of these factors, surface water and soil salinity, have been shown to correlate significantly with vegetation distributions (Espinar et al. 2005, Reardon 1996,

Callaway and Sabraw 1994, Allison 1992, Callaway et al. 1989, Zedler 1983, Zedler and Beare 1986). For example, Zedler (1983) documented the conversion of a pickleweed-dominated salt marsh to a cattail-dominated (*Typha domingensis*) freshwater marsh along the San Diego River. Zedler found that the conversion was highly correlated with prolonged reservoir discharges that continued well beyond the normal rainy season, thereby decreasing salinities both spatially and temporally. Natural variability in abiotic factors such as precipitation, tidal fluctuation, and evapotranspiration, as well as anthropogenic changes to those factors such as freshwater discharges, non-point source pollution (nutrients and sediments), and regional/global climate changes (drought, temperature, sea level), influence these variables as well.

Increased freshwater input could influence surface water salinities in salt marsh habitats within the Project area and adjacent to the Project area, converting salt marsh habitats to brackish or freshwater habitats. Salt marsh conversion fluctuates because it has historically been driven by large-scale influences (both environmental and anthropogenic) affecting the entire system including, among other causes, changes in local and regional freshwater inputs. While portions of the Project site currently support pickleweed growth, changes in freshwater inputs resulting from the Project and the resulting changes in soil salinities could convert areas of salt marsh to brackish or freshwater marsh habitats (H. T. Harvey & Associates 2007), reducing the extent of these habitats and reducing available habitat for special-status species. Any conversion of salt marsh to brackish or fresh habitats could adversely affect the salt marsh harvest mouse, salt marsh wandering shrew, and Bryant's savannah sparrow. In addition, if special-status plants such as the alkali milk-vetch, Congdon's tarplant, Delta woolly-marbles, Hoover's button-celery, prostrate vernal pool navarretia, brittle-scale, San Joaquin spearscale, and Contra Costa goldfields are present in areas of the former Pintail Duck Club's marsh that were inaccessible to our biologists during surveys, there is some possibility that changes in salinity could affect these species as well. Project-induced changes in salinity that result in a degradation of habitat for these special-status species would be considered a significant impact.

Changes in the salinity of stormwater discharges from the site to Mowry Slough will have negligible impacts during major storms or as a result of summer nuisance flows due to the existing large output of fresh water through the ACFCWCD channels to Mowry Slough. As a result, this Project is not expected to result in conversion of salt marsh habitat in Mowry Slough through increased freshwater output.

**Project Area 3.** The extent of new hardscape associated with the proposed residential development (which could result in increased runoff), plus the amount of landscaped area (which could serve as the source of nuisance flows from irrigation) or park areas, is approximately 77.7 ac in Area 3. Any increased runoff from Area 3 resulting from the proposed residential development will drain into ACFCWCD Line D and eventually into Mowry Slough. This increased runoff has the potential to contribute additional fresh water to the slough. However, as discussed above, freshwater inputs to Mowry Slough are expected to have a negligible effect on habitats and species along the slough.

**Project Area 4.** The proposed development will result in increased inputs of fresh water to the surrounding, existing salt marsh habitat, particularly to diked salt marsh habitat in the west-central portion of Area 4, muted tidal salt marsh habitat located near the existing auto wrecking

yard, and, potentially, tidal salt marsh habitat located within Mowry Slough. The extent of new hardscape associated with the proposed residential development (which could result in increased runoff) and the amount of landscaped areas and golf course (which could serve as the source of nuisance flows from irrigation) is unknown, due to uncertainty regarding both the extent of future development and the relative extent of hardscape vs. landscaping in the future development plan for Area 4. However, based on the potential development envelope shown in Figure 2, up to 310 ac in Area 4 could serve as the source of fresh water. As discussed above, freshwater inputs to Mowry Slough from development in Area 4 are expected to have a negligible effect on habitats and species along the slough, but effects on salt marsh habitats in remaining natural areas in Area 4 could be substantial.

Implementation of Mitigation Measures 2A-2G described above will reduce the Project's changes in rates and volumes of discharge of fresh runoff and nuisance flows into salt marsh habitats, and will reduce impacts to salt marsh habitats related to the discharge of fresh water from the Project site to a less-than-significant level.

### **Potential Short-term Impacts to Water Quality during Construction Phase**

The Project may result in temporary impacts to water quality during construction in several ways. Soil disturbance during soil stockpiling and grading can result in mobilization of dust that coats plants (possibly including special-status species) in areas that are not directly impacted, potentially adversely affecting their health. Soil disturbance can also result in soil erosion, transport, and siltation of wetlands that are not intended to be filled by the Project. Contamination of aquatic and wetland habitats can occur as a result of fuel leaks in construction equipment, abrasion of materials used in construction, and inputs of debris and runoff of concrete byproducts or slurry. Construction in and near seasonal wetland habitat, salt marsh habitat, any of the existing agricultural ditches present on the site, or the ACFCWCD channels could have a substantial adverse effect on water quality due to increased turbidity and siltation from soil, if ground-disturbing activities occur during the wet season, or if soil is allowed to enter these habitats, or from chemical, particulate or debris contaminants. Soil or contaminants could also potentially be transported to aquatic habitats from activities in upland habitats a considerable distance away from these habitats, for example, in storm runoff or accidental discharge of water. Contamination of these habitats would be a significant impact.

Degradation of water quality on and downstream from the site resulting from construction could adversely affect prey availability, foraging conditions, or the health of a variety of wildlife species, including harbor seals and fish within Mowry Slough; aquatic invertebrates that support foraging and breeding waterbirds in the sloughs, channels or wetland habitats; and terrestrial wildlife species including rare salt marsh associated species as well as common species that use wetland habitat for drinking water, foraging, and refugia. Impacts to wildlife that will be affected by degradation of water quality related to construction would be a significant impact (in addition, see *Potential Impacts to Long-term Water Quality* below).

**Project Area 3.** In Area 3, up to 77.6 ac could be graded during Project implementation, potentially resulting in mobilization of dust and introduction of silt and contaminants into the aquatic habitat of ACFCWCD Line D.

**Project Area 4.** In Area 4, up to 310.3 ac of the Project site could be graded during Project implementation. This grading could potentially result in mobilization of dust and introduction of silt and contaminants into aquatic habitats. There is also the potential to add to construction-period water quality degradation during removal and clean-up of the auto wrecking yards in the northwest portion of Area 4. Chemicals, particularly petroleum-based chemicals, and particulates, such as asbestos brake lining materials, typically contaminate auto wrecking yards. If this cleanup is improperly conducted, these contaminants can leach into adjacent natural habitats during removal of the yards and construction of the golf course in the area.

The following mitigation measures will reduce construction-phase impacts on water quality to a less-than-significant level.

**Mitigation Measure 3A. Incorporate Best Management Practices for Water Quality During Construction.** The Project will incorporate Best Management Practices (BMPs) for water quality to minimize impacts in the surrounding wetland environment, sloughs and channels, and the San Francisco Bay during construction. These BMPs will include numerous practices that will be outlined within the Stormwater Pollution Prevention Plan (SWPPP), but will include measures such as:

1. No equipment will be operated in live flow in any of the sloughs or channels or ditches on or adjacent to the site.
2. No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into aquatic or wetland habitat.
3. Standard erosion control and slope stabilization measures will be required for work performed in any area where erosion could lead to sedimentation of a waterbody. For example, silt fencing will be installed just outside the limits of grading and construction in any areas where such activities will occur upslope from, and within 50 ft of, any wetland, aquatic, or marsh habitat. This silt fencing will be inspected and maintained regularly throughout the duration of construction.
4. Machinery will be refueled at least 50 ft from any aquatic habitat, and a spill prevention and response plan will be developed. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

**Mitigation Measure 3B. Minimize Soil Disturbance Adjacent to Wetland and Marsh Habitat.** To the extent feasible, soil stockpiling, equipment staging, construction access roads, and other intensively soil-disturbing activities will not occur immediately adjacent to any wetlands that are to be avoided by the Project. The limits of the construction area will be clearly demarcated with Environmentally Sensitive Area fencing to avoid inadvertent disturbance outside the fence during construction activities.

**Mitigation Measure 3C. Dust Suppression.** Dust suppression (e.g., using watering trucks) will be implemented during all grading, construction, and soil stockpiling activities that have the potential to mobilize dust to keep dust from being transported to vegetated wetlands nearby. If

soil stockpiles are to remain on the site for long periods of time prior to the start of grading, they will be hydroseeded so that vegetation will suppress dust and inhibit erosion.

**Mitigation Measure 3D. Avoid Contamination of Adjacent Natural Habitats during Environmental Clean-up of the Auto Wrecking Yards in Area 4.** All mitigation measures for containing contamination from the auto wrecking yard removal will be followed (see *Hazardous Materials* and *Water Quality* sections of the DEIR).

### **Potential Long-Term Impacts to Water Quality**

The Project may result in the degradation of water quality through stormwater runoff flowing into existing wetland and aquatic habitats, and, subsequently, into Mowry Slough and the San Francisco Bay. After completion of construction, stormwater runoff from the Project's developed areas may contain eroded earthen materials or dissolved chemicals (from debris, landscaping fertilizers and pesticides, and vehicular traffic debris, including abraded tire and brake lining materials) that could affect the surrounding aquatic habitats through siltation, erosion, or contamination. Similarly, the concentration of runoff from sheet flow across the site (the existing condition) into a reduced number of discharge points would increase the likelihood of soil erosion, potentially adding suspended particulate matter to the aquatic habitat (see *Impacts of Alteration of Site Hydrology on Remaining Natural Habitat* above). In addition, if improperly conducted, remediation of any contamination in the auto wrecking yards could allow contaminants to leach into adjacent natural habitats from the auto wrecking yard area clean-up.

Unlike the construction-related impacts to water quality discussed above, these impacts have the potential to be long-term and on-going. The degradation of water quality could adversely affect the quality of habitat for, and possibly the health of, both common and special-status species that will continue to use natural areas on and adjacent to the site. In addition, siltation within these habitats may change the existing vegetation community present and/or eliminate any previously undisturbed habitat that could provide suitable habitat for special-status plant species in the future. The Project is unlikely to contribute substantially to long-term degradation of water quality in Mowry Slough and ACFCWCD Line D since contributions from the Project would be minimal relative to contributions from the rest of these channels' large watersheds. However, due to the number of sensitive wildlife species using Mowry Slough and its marshes downstream from the site, any adverse effect on water quality could be substantial. Degradation of water quality in the long-term due to Project development would be a significant impact.

**Project Area 3.** Stormwater runoff from proposed residential development in Area 3 may contain landscape chemicals, roadway contaminants, and sediments, which would degrade water quality in ACFCWCD Line D and Mowry Slough.

**Project Area 4.** As in Area 3, stormwater runoff from residential development in Area 4 may contain landscape chemicals, roadway contaminants, and sediments. Runoff from the golf course, should it be constructed, could also contain fertilizers and other landscaping chemicals. These contaminants could degrade water quality in ACFCWCD Line D, Mowry Slough, or on-site aquatic and wetland habitats.

The following mitigation measures will reduce long-term impacts on water quality to a less-than-significant level.

**Mitigation Measure 4A. Incorporate Water Quality Treatment Measures into the Project.**

The Project will incorporate measures for long-term water quality treatment to minimize impacts to water quality in the surrounding marsh environment and San Francisco Bay subsequent to Project implementation. The purpose of these measures will be to ensure that water leaving the Project site and entering seasonal wetland and marsh habitats, including ACFCWCD Line D and Mowry Slough, will be of the same quality (or better) than currently enters these habitats from the Project site. These measures include the design and construction of features to remove particulates and contaminants from runoff. Such features may include mechanical treatment; the use of grassy swales to capture contaminants from the golf course, landscaping or residences as water infiltrates/percolates to the surrounding wetland habitat; the use of “planter boxes” within private development to treat individual residential runoff; the use of surface materials (where practicable) to allow for infiltration on private property (including permeable driveway material); and the retention of water on the site, when possible (in addition, see *Water Quality* section in the DEIR).

**Potential Spread of Non-native, Invasive Plant Species**

Several non-native, invasive species occur on the site, including perennial pepperweed, black mustard, and prickly ox-tongue. Invasive species, particularly fast-growing herbaceous invaders, are often disturbance-adapted, and soil disturbance of the type that will occur during the construction of the Project is often followed by an aggressive invasion of the disturbed area by these species. Table 4 lists invasive species observed at the Project site and the rating assigned to the species by the California Invasive Plant Council of the ecological impact and the invasive potential (California Invasive Plant Council 2008). Under existing conditions, there are small populations of many of these species throughout the Project site; however, ground disturbance associated with the Project would create vast new areas suitable for recruitment of these non-native species (e.g., along the fill embankments), many of which form dense, monotypic stands, eliminating any natural habitat that the area previously supported. Expansion of these invasive plant populations on the site will also increase the seed bank on the site allowing spread to unimpacted natural habitats on the site. While the areas of the Project site that are in agricultural production contain some of these non-native, invasive plant species, the most damage would be caused by an increase in the species listed as having a severe ecological impact (fennel, pampas grass, perennial pepperweed, and smallflower tamarisk). Invasion by these non-native species will degrade the functions and values of preserved natural habitat for native plants and wildlife species and reduce the potential for native species to use the landscaped areas within the new development, resulting in a significant impact.

**Table 5: List of Invasive Plant Species Observed at the Project Site and the California Invasive Plant Council Ratings of Ecological Impact and Invasive Potential by Species.**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Habitat Where Species Was Observed on Site</b>	<b>Ecological Impact*</b>	<b>Invasive Potential*</b>
Black mustard	<i>Brassica nigra</i>	Ruderal herbaceous field	B	B

Common Name	Scientific Name	Habitat Where Species Was Observed on Site	Ecological Impact*	Invasive Potential*
Canary Island date palm	<i>Phoenix canariensis</i>	Developed and ruderal herbaceous field	C	B
Fennel	<i>Foeniculum vulgare</i>	Ruderal herbaceous field	A	B
Field mustard	<i>Brassica rapa</i>	Ruderal herbaceous field	C	B
Lollypop tree	<i>Myoporum laetum</i>	Ruderal herbaceous field, developed	B	B
Pampas grass	<i>Cortaderia selloana</i>	Ruderal herbaceous field	A	A
Perennial pepperweed	<i>Lepidium latifolium</i>	Ruderal herbaceous field along the Southern Pacific railroad tracks and within some seasonal wetland habitat	A	A
Poison hemlock	<i>Conium maculatum</i>	Ruderal herbaceous field and near aquatic	B	B
Prickly ox-tongue	<i>Picris echioides</i>	Ruderal herbaceous field	C	B
Russian thistle	<i>Salsola tragus</i>	Ruderal herbaceous field, seasonal wetland	C	B
Smallflower tamarisk	<i>Tamarix parviflora</i>	Ruderal herbaceous field and developed, particularly near the existing barn	A	A
Stinkwort	<i>Dittrichia graveolens</i>	Ruderal herbaceous field and developed	B	A
Washington fan palm	<i>Washingtonia robusta</i>	Developed areas and in ruderal herbaceous field habitat along Southern Pacific railroad tracks	B	B

A= Severe; B = Moderate; C = Limited. These ratings were derived from the California Invasive Plant Council website: <http://www.cal-ipc.org/ip/inventory/weedlist.php>

**Project Area 3.** Fill material for the proposed residential construction may contain seed from non-native plant species, and site grading will likely spread non-native, invasive plant species. However, no populations of fennel, pampas grass, perennial pepperweed, or small flower tamarisk have been observed in Area 3. Because mowing occurs along peripheral habitat adjacent to development, the Project will not result in additional impacts related to non-native, invasive plant species. However, should fennel, pampas grass, perennial pepperweed, or small flower tamarisk appear within areas that will be graded or in areas after site grading is completed, the following mitigation measures will be required to reduce the potential spread of non-native, invasive plant species.

**Project Area 4.** Under existing conditions the levee banks are dominated by black mustard, forming dense thickets that are sprayed periodically with herbicide. Fill material for the

construction of the potential residential development/golf course may contain seed from non-native plant species and site grading will likely spread non-native, invasive plant species. Of greater importance, there are populations of fennel, pampas grass, perennial pepperweed, and small flower tamarisk within areas proposed for development that may be spread during construction, potentially resulting in substantial impacts to remaining natural habitats.

Implementation of the following mitigation measures will reduce the impacts to native habitats potentially resulting from the spread of non-native, particularly invasive plant species to a less-than-significant level.

**Mitigation Measure 5A. Reduce and Prevent the Spread of Non-native, Invasive Weed Species.** To reduce the potential establishment or spread of non-native, invasive weed populations as a result of Project activities, the following measures will be implemented:

- Within areas subject to grading activities, concentrations of invasive species that could have a severe ecological impact on surrounding habitat (i.e., fennel, pampas grass, perennial pepperweed, or small flower tamarisk) will be removed to limit the spread of seed to new areas.
- Maintain staging areas free of these weeds (fennel, pampas grass, perennial pepperweed, or small flower tamarisk) and their seeds for the duration of their use during Project construction.
- If straw is used for road stabilization and erosion control, it must be certified weed-free.

**Mitigation Measure 5B. Design and Implement an Invasive Plant Species Management Plan Prior to Grading or Importation of Fill Material.** The Project will develop and implement an Invasive Species Management Plan to reduce the presence and spread of non-native, invasive plant species on the site prior to importing any fill material required to elevate building sites and prior to grading any areas on the Project site. This management plan will outline methods to control the existing populations of non-native, invasive weed species that are not a severe ecological threat and to remove those weed species present that pose a severe ecological threat from the accessible portion of the site to prevent the spread of their seed during and after construction and to prevent the invasion of graded area by invasive species. This will also prevent a decline in the function and values of natural habitat remaining on the site due to the proliferation of invasive species on graded surfaces and the increased seed bank that would be present if invasive species spread to more extensive areas on the site (e.g., embankments of the fill). This management plan will contain details regarding the removal and treatment of these species (herbicide application, manual removal, mowing, etc), success criteria, and a seeding plan to encourage native species to grow within disturbed habitat. Because the Project site falls within the CDFG designated Alameda/Contra Costa County Weed Management Area, this Invasive Species Management Plan will be approved by the CDFG and the City of Newark prior to issuance of a grading permit for the Project.

## **Indirect Project Effects on Waterbird Use of Wetlands**

The majority of wetlands, marshes, and aquatic habitats on the Project site will not be directly filled by Project activities. These habitats are subject to a number of potential impacts related to hydrology, salinity, water quality, recreational disturbance, and other factors, as described previously, and mitigation measures to reduce those impacts are described in previous impact discussions. While those mitigation measures are expected to reduce the other impacts to these remaining natural areas to less than significant levels, there is still some potential for a reduction in the habitat value provided by these wetlands after the Project is constructed.

**Project Area 3.** Although residential development in Area 3 may result in increased human use of levees adjacent to waterbird habitats in Area 4, as described under *Impacts to Sensitive Habitats and Species from Recreational Disturbance* below, no wetlands or other habitats expected to be used by large numbers of waterbirds are present immediately adjacent to Area 3. Very small numbers of ducks forage in ACFCWCD Line D on the west side of the proposed development area in Area 3, but this development will have a minimal effect on waterbird use of the Areas 3 and 4 Project site as a whole.

**Project Area 4.** The proposed Project will result in the presence of residential and golf course development in close proximity to seasonal wetland, marsh, and aquatic habitats in Area 4. To the extent that these sensitive habitats currently support (at least seasonally) shorebirds, waterfowl, and other wetland-associated species, it is likely that proximity to developed areas, coupled with recreational disturbance (see *Impacts to Sensitive Habitats and Species from Recreational Disturbance* below) will result in diminished wildlife use after the Project is completed.

As discussed previously, intensive surveys specifically focusing on waterbird use of wetlands on the site and incidental observations during other biological surveys have documented that the seasonal wetlands on the site support very low use by most waterbirds. On two dates during our November 2008 – April 2009 surveys, we observed large concentrations of gulls roosting on the site. These birds are associated with the adjacent Tri-Cities Landfill and were typically seen foraging on the landfill and roosting or foraging on the adjacent salt ponds. Thus, the seasonal wetlands on the Project site do not represent important or necessary habitat for these gulls. Otherwise, very few individual shorebirds or waterfowl were seen on the site during these focused surveys, or during our incidental observations from previous years. As a result, we have determined that the loss of use of these seasonal wetlands by waterbirds will not result in a significant impact.

However, the perennial wetlands within the former Pintail Duck Club were documented to consistently support much higher numbers of waterbirds. Specifically, waterbirds were concentrated within an area of approximately 18 ac providing a mosaic of open water, exposed mud, and emergent vegetation. In a number of areas in the South Bay, large numbers of waterbirds feed, loaf (e.g., during high tides), preen, and even nest in close proximity to high levels of human activity. Examples of such areas include water treatment ponds on Radio Road in Redwood City, the Palo Alto Baylands, Coast Casey Forebay in Mountain View, Shoreline Lake in Mountain View, and the Sunnyvale Water Pollution Control Plant ponds. In these areas,

waterbirds have habituated to some extent to pedestrians, joggers, cyclists, dog-walkers, and other human activities. As a result, we do not expect the development of Newark Specific Plan Area 4 to result in complete abandonment of the former Pintail Duck Club wetlands by waterbirds. Nevertheless, noise, movement of people, domestic animals, and vehicles within the developed area, and encroachment of people and domestic animals from the developed areas into the natural areas in and around the former Pintail Duck Club's wetlands are expected to reduce the habitat value of this area to some extent, thus reducing the number of waterbirds using this area.

Because of the importance of such high-quality wetlands to breeding, wintering, and migratory waterbirds in the South Bay, we consider the potential impact to waterbirds using the perennial wetlands on the former Pintail Duck Club to be significant without implementation of the measure described below. The following mitigation measure will be implemented to reduce indirect effects of the Project on wildlife use of perennial wetlands in the former Pintail Duck Club to a less than significant level.

**Mitigation Measure 6A. Habitat Mitigation.** Indirect impacts of development in Area 4 on birds using the wetlands in the former Pintail Duck Club will be mitigated by the creation or enhancement of waterbird habitat on the site at a 0.5:1 ratio, based on the extent of habitat (18 ac) that was observed to consistently support high waterbird use in the former duck club. This ratio is less than 1:1 because we do not expect indirect effects of development to result in complete loss of waterbird use of these wetlands based on the degree of habituation to human activities observed at other South Bay locations supporting waterbirds, as described above. Therefore, a total of 9 ac of mitigation will be provided. The mitigation areas should provide perennial or near-perennial water with a variety of depths ranging from very shallow water or exposed mud to water up to several feet deep to support the bird species currently using the former Pintail Duck Club. This mitigation can occur within the same wetland areas created as mitigation for permanent loss of wetlands as long as it is located at least 300 ft from any residential or golf course development.

The mitigation plan that is to be developed for mitigating direct wetland impacts (as described in Mitigation Measure 1B above) will incorporate a discussion of wetland creation/enhancement measures for indirect impacts to waterbird use of wetlands on the site. The plan will list target mitigation activities, discuss how these activities will benefit waterbirds, and include monitoring and reporting guidelines with success criteria. The mitigation work will begin in the same construction season as the initiation of grading or construction, and mitigation site grading will be completed within one year of initiation. All created/enhanced habitats will be protected in perpetuity and will be placed into a land trust or under a conservation easement, or fee title will be transferred to the Refuge or a third-party non-profit entity that has been approved by the City and appropriate permitting agencies.

### **Potential Impacts to Burrowing Owls**

The burrowing owl, a California species of special concern, is known to occur on the Project site. Because burrowing owl numbers in a given area can fluctuate from year to year, this impact assessment follows the recommendations of the California Burrowing Owl Consortium (1993) in

considering burrowing owl numbers and locations over the past 3 years (since 2006) in this impact assessment rather than only considering existing (2008-2009) conditions.

**Project Area 3.** Surveys conducted by H. T. Harvey & Associates since 2006 have not detected owls in the northeastern corner of Area 3 where this Project proposes residential development, nor along the adjacent portions of ACFCWCD Line D. As a result, residential development in the northeastern corner of Area 3 is not expected to result in direct impacts to nests or roosts of this species. Due to intensive cultivation of the agricultural fields in the proposed development area in Area 3, this area does not support California ground squirrel burrows and thus does not provide suitable owl nesting or roosting habitat. Burrowing owls may forage in this area on occasion, but prey availability is likely low due to intensive cultivation. As a result, the proposed residential development in Area 3 will result in the loss of only marginal-quality foraging habitat for owls that may be nesting or roosting outside the development area.

Residential development in Area 3 could, however, result in indirect impacts to burrowing owls through increased human use of levees adjacent to habitat of these species in Area 4 (as discussed in *Impacts to Sensitive Habitats and Species from Recreational Disturbance* below). Also, domestic pets, cats in particular, may stray from the residential areas in Area 3 and may depredate or harass burrowing owls elsewhere in Area 3 (e.g., where a pair was recorded in 2007 northwest of the stormwater wetland) or in Area 4.

**Project Area 4.** Suitable burrowing owl nesting and roosting habitat in Area 4 is limited by the intensive agricultural disturbance on much of the site and by extensive wetland conditions, which are not conducive to use by ground squirrels or roosting/nesting burrowing owls. As a result, owl breeding habitat in Area 4 is limited primarily to levees and field edges.

Several pairs have been recorded in or adjacent to Area 4 in recent years. Burrowing owl observations in 2006 suggest that up to four pairs were using Area 4 for nesting that year. Two sets of burrows were occupied along the Southern Pacific railroad tracks on the northeastern border of Area 4 (northwest of ACFCWCD Line D), one was located along the Mowry Slough levee midway along the western border of Area 4, and one was located along the levee on the southeastern side of ACFCWCD Line D. Burrowing owls were observed at some of these locations in Area 4 during wetland delineation surveys in 2007, and a pair was occupying a burrow on 7 August 2008 along the Southern Pacific railroad tracks northwest of ACFCWCD Line D. Nevertheless, burrowing owl abundance in 2007 and 2008 has clearly been lower than it was in 2006.

The edges of the agricultural areas bounded by Mowry Avenue, the railroad tracks, and ACFCWCD Line D may be modified for golf course construction, eliminating or degrading potential nesting habitat in that area. Golf course or residential construction would also eliminate or degrade potential nesting habitat on the southeast side of ACFCWCD Line D and at the edges of the fields between Line D and the agricultural road. Collectively, these areas supported 3 of the 4 nesting sites observed within or immediately adjacent to the Project's impact areas since 2006. After development, portions of the golf course that are considered "rough" and "out of bounds" areas will provide some potential nesting habitat for burrowing owls if ground squirrels are not controlled in these areas.

After construction has been completed, nests in preserved habitat adjacent to the golf course could be disturbed to the extent that the nest is abandoned or unsuccessful. Maintenance activities around the golf course, or golfers and residents who enter natural areas, may unintentionally disturb nesting or roosting burrows. Planting of trees within the golf course will provide additional perches and nesting sites for raptors that may prey on burrowing owls. Although the Project does not include the construction of any formal trails along Mowry Slough, the number of people and domestic animals expected to access the levee along Mowry Slough will be greater following Project development, subjecting pairs of these species nesting along these levees to more disturbance. Therefore, implementation of the proposed development plan in Area 4 would disturb, either directly or indirectly, nesting, roosting, and foraging habitat for up to four pairs of burrowing owls that have been present on the site since 2006.

Burrowing owls likely forage throughout much of Area 4. The heavily cultivated agricultural fields provide low-quality foraging habitat when they are heavily disked, but cultivated fields with low vegetation, ruderal habitats, and seasonal wetlands provide suitable foraging habitat in addition to the diked and muted tidal marsh that will be only marginally impacted by the Project. The golf course may provide some foraging habitat for burrowing owls following Project development, but development of the golf course and residential development in Area 4 will result in a net loss of foraging habitat for this species.

If owls are using burrows on or immediately adjacent to the site when Project construction commences, construction activities could result in the mortality or injury of individual owls in burrows, or cause the abandonment of active nests. Due to the small size of the burrowing owl population in the region, such loss of individuals or reproductive effort would be a significant impact. In addition, limited habitat is available for burrowing owls in the vicinity of the Project so loss of foraging habitat and burrows for nesting would have a significant effect on owl populations.

Some burrowing owl nesting and foraging habitat will remain in Area 4 following development, and (particularly with implementation of Mitigation Measure 7D below) owls are expected to continue to nest, roost, and forage in Area 4 following development. Such owls will be subject to disturbance of nesting and roosting birds by golfers, people walking along levees, and domestic animals, and possible predation by domestic animals and urban-adapted nuisance species.

Based on the locations of nesting burrowing owls in 2006, the nesting sites of up to four pairs of owls could potentially be lost, degraded, or disturbed as a result of development within the potential development envelope in Area 4. Results of 2007 and 2008 observations suggest that the number of pairs impacted may be lower than four, and given the extent of habitat in Area 4 that will not be directly impacted by the Project, it is possible that several pairs of owls may continue to use the site. However, because suitable roosting and nesting habitat for these owls would most likely occur along levees or at the edges of the golf course, areas occupied by any owls that remain in Area 4 would be accessible to humans and other animals and would thus be subject to recreational disturbance and predation and harassment by pets and urban-adapted

predators. Therefore, for the purpose of this impact assessment, we have assumed that up to four pairs of burrowing owls in Area 4 may be lost as a result of the Project.

Development on Area 3 will require implementation of Mitigation Measures 7A, 7B, and 7C below to ensure against the possibility of take of individual owls, while development on Area 4 will require implementation of Measures 7A-7E. Implementation of these mitigation measures would reduce Project impacts to burrowing owls to a less than significant level.

**Mitigation Measure 7A. Pre-construction Surveys.** Pre-construction surveys for burrowing owls will be completed in construction areas in conformance with CDFG protocols. Because owls are known to occupy the site, these surveys will be conducted no more than 15 days prior to the start of construction to minimize the probability of immigration of owls between the time surveys are conducted and the initiation of grading. If burrowing owls are detected on or within 250 ft of the site, Mitigation Measures 7B-7C will be implemented.

**Mitigation Measure 7B. Buffer Zones.** For burrowing owls present during the non-breeding season (generally 1 September to 31 January), a 150-ft buffer zone will be maintained around the occupied burrow(s) if practicable. If such a buffer is not practicable, then a buffer adequate to avoid injury or mortality of owls will be maintained, or the birds will be evicted as described for Mitigation Measures 7C, below. During the breeding season (generally 1 February to 31 August), a 250-ft buffer, within which no new activity will be permissible, will be maintained between Project activities and occupied burrows. Owls present on site after 1 February will be assumed to be nesting unless evidence indicates otherwise. This protected buffer area will remain in effect until 31 August, or based upon monitoring evidence, until the young owls are foraging independently or the nest is no longer active.

**Mitigation Measure 7C. Passive Relocation.** If construction will directly impact occupied burrows, eviction of owls should occur outside the nesting season to prevent injury or mortality of individual owls. No burrowing owls will 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). Relocation of owls during the non-breeding season will be performed by a qualified biologist using one-way doors, which should be installed in all burrows within the impact area and left in place for at least two nights. These one-way doors will then be removed and the burrows backfilled immediately prior to the initiation of grading.

**Mitigation Measure 7D. Mitigation for Lost/Degraded Habitat.** To compensate for the potential loss of up to four pairs of burrowing owls on Area 4, habitat will be preserved and managed for burrowing owls on and/or off-site if development occurs on Area 4. California burrowing owl mitigation guidelines recommend that 6.5 ac of foraging habitat be preserved and managed per occupied burrowing owl burrow (whether by a pair or singly) in mitigation sites. As a result, the Project proponent will provide up to 26 ac (6.5 ac for each of four pairs) of mitigation habitat. This habitat will be preserved and managed specifically for use by burrowing owls.

Development on Area 4 is likely to occur in phases, and provision of burrowing owl habitat mitigation will likewise be phased according to the extent of habitat impacts. If any residential or recreational development occurs on Area 4, then habitat mitigation will be provided. Residential or recreational development affecting less than 100 ac on Area 4 will require mitigation for two pairs of owls, or 13 ac of habitat mitigation on-site and/or off-site. Once the extent of residential or recreational development equals or exceeds 100 ac, mitigation for two additional pairs of owls will be required, for a total of 26 ac of habitat mitigation.

If on-site habitat is to be preserved, a mitigation and monitoring plan detailing the areas to be preserved for owls; the methods for managing on-site habitat for owls and their prey; methods for enhancing burrow availability within the mitigation site (potentially including the provision of artificial burrows, although long-term management for ground squirrels will be important as well); measures to minimize adverse effects of development on owls on-site; and a monitoring program and adaptive management program will be prepared by a qualified biologist and submitted to the City of Newark and the CDFG for review and approval. Although burrowing owls may forage in wetlands with short vegetation, at least 50% of the mitigation area must consist of upland habitat suitable for use by burrowing mammals, and no wetlands supporting tall vegetation unlikely to be used by foraging burrowing owls will be included within the mitigation site. The mitigation area must be contiguous with habitat that is permanently preserved as open space to avoid having the site surrounded by development in the future. The mitigation habitat will be protected in perpetuity and will be placed into a land trust or under a conservation easement, or fee title will be transferred to the Refuge or a third-party non-profit entity that has been approved by the City and appropriate permitting agencies.

A combination of on-site and off-site mitigation is acceptable. However, on-site mitigation will contribute toward the habitat mitigation requirement (e.g., either 13 ac of mitigation for development of less than 100 ac or 26 ac of mitigation for development of 100 ac or more on Area 4) only if at least 6.5 ac of contiguous burrowing owl habitat is preserved and managed on-site.

If the project proponent elects to mitigate off-site, such mitigation may take the form of habitat preservation and management (in which case all the requirements in the preceding paragraphs would apply) or the purchase of credits in an off-site mitigation bank. Because the nearest burrowing owl mitigation banks are located outside of the South Bay, this mitigation may occur outside the region. However, unless at least 13 ac of burrowing owl habitat mitigation occurs on-site, some on-site enhancements will also be made to reduce impacts of the Project on the local (South Bay) burrowing owl population if development occurs on Area 4. Such enhancements will include the provision of artificial burrow complexes at the edge of the golf course or on the outboard side of levees on the site and management of at least portions of levee side slopes around these burrow complexes to provide suitable conditions for burrowing owls and ground squirrels (e.g., periodic mowing to maintain short vegetation).

Residential or recreational development affecting less than 100 ac on Area 4 will require the provision of two artificial burrow complexes unless at least 13 ac of burrowing owl habitat mitigation occurs on-site. Once the extent of residential or recreational development equals or exceeds 100 ac, two additional burrow complexes will be provided if at least 13 ac of burrowing owl habitat mitigation does not occur on-site. These burrow complexes, and the vegetation

around them, will be maintained regularly to maintain suitable on-site conditions for nesting and roosting owls. Given the extent of natural habitat with short vegetation, and the continued presence of seasonal wetlands on much of Area 4, providing and maintaining burrows for use by owls is expected to maintain some burrowing owl presence on the site even if most or all of the owl habitat mitigation occurs off-site.

**Mitigation Measure 7E. Signage to Minimize Disturbance of Burrowing Owls.** As described in greater detail under Mitigation Measure 12B below, signage will be placed in appropriate locations on the golf course, should it be built, to prohibit golfers from entering areas where the artificial burrow complexes will be located. If development occurs on Area 4, signage will be placed along the ACFCWCD Line D levees and the Mowry Slough levee to instruct recreational users of these levees against leaving the levee tops to protect sensitive species such as the burrowing owl.

### **Potential Impacts to Nesting Peregrine Falcons**

The peregrine falcon has been removed from the list of federally endangered and threatened species; however, it is still considered threatened under CESA and is protected by the MBTA and California Fish and Game Code. Peregrine falcons feed primarily on other birds and within the South San Francisco Bay area mainly prey on waterfowl and shorebirds. Although they may forage from time to time on Area 3 (e.g., on rock pigeons [*Columba livia*]), they are much more likely to forage in Area 4 where more waterbirds occur. Peregrine falcons are expected to continue to forage on the Project site, particularly in Area 4, after the Project is constructed.

Although peregrine falcons have not been recorded nesting on or immediately adjacent to the Project site, their presence in the South Bay as a breeding species has been increasing over the last few years. Peregrines have been recorded nesting near salt ponds in Mountain View over the last 3 years, and in 2008 a peregrine falcon nest was recorded in the Mowry salt ponds in Fremont, a short distance southeast of the Project site. All of these salt pond nests have been in nests previously constructed by common ravens or red-tailed hawks on electrical transmission towers. With their increasing presence in the South Bay region there is potential for peregrine falcons to nest on or near the Project site in the future.

**Project Area 3.** No electrical transmission towers or other potential nest substrates are present in Area 3, and thus the Project will not result in any impacts to nesting peregrine falcons in Area 3.

**Project Area 4.** Two electrical transmission lines run roughly east-west through the center of Area 4, and another runs northeast-southwest along the eastern edge of Area 4 (Figure 6). Although numbers of pairs of peregrine falcons in the South Bay have been increasing in recent years, the species is still a fairly rare breeder in the region, and there is a low probability that peregrines would nest on the site. Nevertheless an existing red-tailed hawk nest on a tower central part of Area 4 provides a potential future nest site for peregrine falcons, and other towers could support nests in the future as well. If Project construction (including implementation of any mitigation measures) were to be initiated in close proximity to an active peregrine falcon nest, it is possible that the adults could abandon the nest, including eggs and chicks. The loss of

a nest site would not result in a significant impact given the abundance of suitable nest sites on other towers in the South Bay. However, loss of eggs or young due to Project-related nest abandonment would represent a substantial impact to this species' regional populations given its existing low populations in the South Bay, and such an impact would be significant under CEQA.

The following mitigation measures would reduce impacts to nesting peregrine falcons to a less than significant level.

**Mitigation Measure 8A. Avoidance of Nesting Season Construction.** If construction near potential peregrine falcon nest sites in Area 4 commences during the nonbreeding season (1 September to 31 January), it will not cause the abandonment of a peregrine falcon nest.

**Mitigation Measure 8B. Pre-construction/Pre-disturbance Surveys.** If construction commences between 1 February and 31 August, then pre-construction surveys for nesting peregrine falcons will be conducted by a qualified ornithologist to ensure that no nests will be disturbed during Project implementation. This survey should be conducted no more than 14 days prior to the initiation of demolition/construction activities during the early part of the breeding season (February through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). During this survey, the ornithologist will inspect all power-line towers in and immediately adjacent to Area 4 within 300 ft of impact areas for nests. If no peregrine falcon nests are detected within the Project area during this survey, further measures are not necessary.

**Mitigation Measure 8C. Buffer Zones.** If an active nest is found within 300 ft of any construction activity, a 300-ft buffer, within which no new Project-related activity will be permissible, will be maintained between Project activities and the occupied nest. This protected area will remain in effect until the young falcons have fledged or the nest is no longer active.

### **Potential Impacts to Tricolored Blackbird Colonies**

The tricolored blackbird, a California species of special concern, is not known to nest in the Project area, and there is a low probability that the species will establish colonies on the site. However, because colonies of this species move around from year to year, there is some potential for establishment of a colony in the Project area in the future.

**Project Area 3.** Tricolored blackbirds may forage occasionally in the portion of Area 3 where residential development is proposed, but they are not expected to occur there frequently or in large numbers, and no nesting habitat is present in or near that area. Within Area 3, the only potential nesting habitat is in emergent vegetation in the stormwater wetland in the southeastern corner. This wetland is likely too small to support a tricolored blackbird colony, but the possibility of future breeding in this wetland cannot be eliminated. If a colony were to become established here, and if construction of the immediately adjacent Stevenson Boulevard flyover were initiated during the breeding season, the colony (including active nests, eggs, and young) could be abandoned. Tricolored blackbirds typically nest in large colonies, with colonies in the

South Bay often containing tens or hundreds of pairs, and such an impact could therefore affect a substantial proportion of the South Bay population.

**Project Area 4.** The tricolored blackbird typically nests in large, nontidal, freshwater marshes, and it is therefore unlikely to use the diked salt marsh in the former Pintail Duck Club or tidal marsh along Mowry Slough adjacent to the Project site in Area 4 for nesting. Nevertheless, there is at least a possibility of future breeding in dense cattails and tules along the eastern edge of the diked salt marsh in Area 4. Such areas are likely far enough from proposed construction activities that Project construction would not disturb tricolored blackbird colonies to the point of nest abandonment. Nevertheless, if construction activities are initiated close to a tricolored blackbird colony in this area, or if construction activities in Area 4 were to occur close to a colony in the stormwater wetland in the southeastern corner of Area 3, the colony (including active nests, eggs, and young) could be abandoned.

Due to the presence of at least marginal-quality nesting habitat for tricolored blackbirds and this species' tendency to nest in large colonies, there is some potential for the Project to result in a significant impact to nesting tricolored blackbirds. The following mitigation measures would reduce impacts to nesting tricolored blackbirds to a less than significant level.

**Mitigation Measure 9A. Avoidance of Nesting Season Construction.** If construction near potential tricolored blackbird breeding habitat commences during the non-breeding season (approximately 1 April through 31 July for this species), it will not cause the abandonment of an active colony of this species.

**Mitigation Measure 9B. Pre-construction/Pre-disturbance Surveys.** If construction commences between 1 April and 31 July, then pre-construction surveys for nesting tricolored blackbirds will be conducted by a qualified ornithologist to ensure that no nests will be disturbed during Project implementation. This survey should be conducted no more than 14 days prior to the initiation of demolition/construction activities. During this survey, the ornithologist will inspect all potential breeding habitat within 400 ft of impact areas for nests. If no tricolored blackbird colonies are detected within the Project area during this survey, further measures are not necessary.

**Mitigation Measure 9C. Buffer Zones.** If an active colony is found within 400 ft of any construction activity, a 400-ft buffer, within which no new Project-related activity will be permissible, will be maintained between Project activities and any occupied nests. This protected area will remain in effect until the young have fledged or the colony is no longer active.

### **Potential Impacts to Roosting Bats**

**Project Area 3.** Although several species of bats may forage on or over Area 3, no structures or trees are present on or within close proximity to the proposed development in Area 3 that are suitable for supporting day roosts of bats. Although development of Area 3 will result in the loss of some foraging habitat (albeit of low quality, due to the intensive cultivation of the site), it will not result in impacts to roosting bats.

**Project Area 4.** Several species of bats have the potential to roost in Area 4. The pallid bat, a California species of special concern, is known to occur in open dry habitats, where they forage on terrestrial arthropods. Pallid bats are not known to occur in the immediate Project area, but ruderal and cultivated habitats on Area 4 provide potentially suitable foraging habitat. The Yuma myotis forages over open baylands habitats in the South Bay. Although this species is not on the list of California species of special concern, and it has no other special status, it is relatively rare in bayside areas in the South Bay. Currently, only three large maternity roosts (consisting of approximately 20 individuals in Alviso, 80 individuals in Fremont, and 40 individuals in Palo Alto) of the Yuma myotis are known in close proximity to high-quality baylands foraging habitat. As a result, any maternity colony of this species, if present on the site, would also be regionally significant. Other than the pallid bat and Yuma myotis, no other bats could potentially roost in Area 4 in such abundance as to be considered regionally significant.

Neither the pallid bat nor the Yuma myotis is known to roost in Area 4, and reconnaissance-level surveys of the farm buildings in Area 4 did not detect any evidence of roosting bats. Nevertheless, it is possible that either species might roost in one or more of several buildings or trees on the site. Such potential roosts include a residence just south of the intersection of Stevenson Boulevard and the Southern Pacific railroad in Area 4; two agricultural structures (barn or equipment holding sheds) in the eastern portion west of the residence; industrial buildings within the auto wrecking yard in the northwestern part of Area 4; and blue gum eucalyptus trees near the auto wrecking yard along Mowry Avenue (Figure 6).

Roosting bat colonies may be as small as a few individuals, but could be as large as over 100 bats. Day roosts, where the bats remain during daylight hours, are the most important roosts but all of these structures or trees have potential to be used by pallid or Yuma bats as night roosts, short term roosts during nighttime foraging. If bats are day-roosting in trees or buildings within the Project area, the removal of these structures will result in the permanent loss of day-roost habitat and may result in the injury or mortality of individual bats. Construction activities in close proximity to active roosts may also cause roost abandonment. Although some displaced bats would be able to find alternative roost sites safely, bats abandoning a roost during daylight hours are subject to high predation risk, and disturbance of a maternity roost to the point of abandonment could result in the mortality of young in that roost. Given the paucity of suitable pallid bat and Yuma myotis maternity roosts near the bay, the loss of a maternity roost site of one of these species would be a significant impact. In addition, injury or mortality of large numbers of bats of any species would be significant. Project impacts on bat foraging habitat are not considered significant, as bats will be able to forage on and over the golf course once it is constructed, and ample foraging habitat for bats will be present on and in the vicinity of the site following Project construction.

The following avoidance and minimization measures will reduce potential impacts to bat roosts to a less than significant level.

**Mitigation Measure 10A. Surveys for Roosting Bats.** A survey for roosting bats will be conducted prior to the removal of any building or tree in Area 4 with potential for day-roosting

by bats, or prior to the initiation of any construction activities within 250 ft of such potential roost sites. The survey will be conducted by a qualified bat biologist (i.e., a biologist holding a CDFG collection permit and a Memorandum of Understanding with CDFG allowing the biologist to handle and collect bats). If suitable roost sites are found but a visual survey is not adequate to determine presence or absence of bats (which would be particularly likely in the case of potential roost trees), acoustical equipment will be used to determine occupancy. This survey will be conducted prior to the beginning of the breeding season (i.e., prior to 1 March) in the year in which construction or demolition in a given area is scheduled to occur so that adequate measures can be implemented, if necessary, to evict the bats during the non-breeding season.

**Mitigation Measure 10B. Pre-demolition/Pre-construction Surveys.** Because the surveys in Mitigation Measure 1 will be conducted prior to the breeding season, several months may pass between that survey and the initiation of construction or demolition in a given area. Therefore, a second pre-demolition/pre-construction survey for roosting bats, following the methods described above, will be conducted within 15 days prior to the commencement of these activities in a given area to determine whether bats have occupied a roost in or near the Project's impact areas. This survey should be facilitated considerably by information (e.g., on potential roost trees) gathered during the previous survey. If bats are found to be roosting, additional mitigation as follows must be implemented.

**Mitigation Measure 10C. Construction-free Buffer Zone if a Maternity Roost is Present.** If a maternity roost of any bat species is present, the bat biologist will determine the extent of a construction-free buffer around the active roost that will be maintained. This buffer would be maintained from 1 March until the young are flying, typically after 31 August.

**Mitigation Measure 10D. Avoidance of Roost Structures.** If a roost of any kind is found in an area (e.g., a building or tree) that will not be disturbed by construction, or that can be avoided, the roost structure will not be impacted.

**Mitigation Measure 10E. Eviction of Bats from a Day Roost Prior to Demolition.** If a day roost is found in a building, or in a tree that is to be completely removed or replaced, individual bats will be safely evicted under the direction of a qualified bat biologist. Eviction of bats will occur at dusk, so that bats will have less potential for predation compared to daytime roost abandonment. Eviction will occur between 1 September and 31 March, outside the maternity season, but will not occur during long periods of inclement or cold weather (as determined by the bat biologist) when prey are not available or bats are in torpor. If a day roost is found within a building, eviction will occur by opening the roosting area to allow air flow through the cavity. Demolition may then follow no sooner than the following day (i.e., there must be no less than one night between initial disturbance for air flow and the demolition). This action should allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. If feasible, one-way doors will also be used to evict bats from tree roosts. If use of a one-way door is not feasible, or the exact location of the roost entrance in a tree is not known, the trees with roosts that need to be removed will first be disturbed by removal of some of the trees' limbs not containing the bats. Such disturbance will occur at dusk to allow bats to escape during the dark hours. These trees would then be removed

the following day. All of these activities will be performed under the supervision of the bat biologist.

**Mitigation Measure 10F. Creation of Alternative Day Roost Structures.** If a day roost for pallid bats or Yuma myotis will be impacted, an alternative bat roost structure will be provided. The design and placement of this structure will be determined by a qualified bat biologist based on the location of the original roost and which species is present. This bat structure will be erected at least one month (and preferably a year or more) prior to removal of the original roost structure. This structure will be checked during the breeding season for up the three years following completion of the Project, or until it is found to be occupied by bats, to provide information for future Projects regarding the effectiveness of such structures in minimizing impacts to bats.

### **Impacts to the Salt Marsh Harvest Mouse and Salt Marsh Wandering Shrew**

**Project Area 3.** No habitat for the federally endangered salt marsh harvest mouse or the salt marsh wandering shrew (a California species of special concern) is present in Area 3, and thus proposed development in Area 3 will not result in direct impacts to these species. Residential development in Area 3 could, however, result in indirect impacts to these species through increased human use of levees adjacent to habitat of these species in Area 4 (as discussed in *Impacts to Sensitive Habitats and Species from Recreational Disturbance* below).

Domestic pets, cats in particular, may stray from the residential areas in Area 3 and may depredate salt marsh harvest mice or salt marsh wandering shrews. Non-native mammals such as house mice and black and Norway rats, as well as urban-adapted natives such as raccoons, are likely to increase in the Project vicinity (including on Area 3) following development. These species may compete with or prey on salt marsh harvest mice or salt marsh wandering shrews.

**Project Area 4.** The salt marsh harvest mouse is known to occur in the diked salt marsh habitat in the former Pintail Duck Club in Area 4 (Shellhammer et al. 1985; Figure 4). Tidal salt marsh along Mowry Slough adjacent to the site and the muted tidal salt marsh in the northwestern part of Area 4 also provide suitable habitat for this species, and salt marsh harvest mice may also occur in the agricultural field/seasonal brackish marsh adjacent to the diked salt marsh habitat, especially where pickleweed is present. Pickleweed is also present in a ditch along the north side of the agricultural road running east-west in the central portion of Area 4; along the ditch that follows the southwestern border of Area 4; along a remnant slough leading northeastward from the pump in the southern part of Area 4; and along the toe of the levee between Area 4 and ACFCWCD Line N (Figure 6). These linear habitat remnants provide low-quality habitat due to their narrow nature and the unsuitability of adjacent agricultural habitat. In addition, pickleweed is present in the seasonal wetlands on the O'Connor parcel, though because of the isolation of these patches of pickleweed by other habitat types, there is a low probability of occurrence by salt marsh harvest mice in these areas. Nevertheless, unless trapping surveys are performed to determine whether salt marsh harvest mice are present or absent in the narrow, linear pickleweed remnants in Area 4 or in the small patches of pickleweed on the O'Connor parcel, salt marsh harvest mice will be presumed to be present in all pickleweed-dominated habitats in Area 4. There is some potential for these species to occur in well-vegetated agricultural habitats and

ruderal areas adjacent to pickleweed-dominated habitats as well, even where these areas do not contain pickleweed, although such areas do not provide high-quality habitat for this species.

The salt marsh wandering shrew, a California species of special concern, is not known to occur on the Project site. Its typical habitat is similar to that of the salt marsh harvest mouse (i.e., pickleweed dominated tidal salt marsh), but it has been recorded in diked marshes. Given the presence of the salt marsh harvest mouse in Area 4, the shrew may occur here as well.

The majority of suitable salt marsh harvest mouse/salt marsh wandering shrew habitat in Area 4 will not be directly impacted by the Project. Most notably, the Project avoids direct impacts to the diked salt marsh and most of the adjacent agricultural field/seasonal wetland habitat in the western portion of Area 4, and no direct impacts to tidal salt marsh along Mowry Slough will occur. However, direct impacts to potential habitat of these species could occur where salt marsh harvest mouse/salt marsh wandering shrew habitat is present within the potential development envelope, as indicated in Figure 6. As discussed previously, the Project will not impact all areas within the potential development envelope, and wetlands providing habitat for the salt marsh harvest mouse/salt marsh wandering shrew will be avoided where practicable. Nevertheless, fill, grading, vegetation removal, and/or shading could result in the direct loss of up to 7.65 ac of salt marsh harvest mouse/salt marsh wandering shrew habitat within the potential development envelope in Area 4.

Long-term indirect impacts to these two species could also occur. Even if habitat is not directly impacted, isolation of habitat for these species resulting from development could adversely affect these species as well. For example, if the patches of pickleweed on the O'Connor parcel support these species, and if development occurs between these patches and the extensive pickleweed marsh in the former Pintail Duck Club, these patches would be isolated from source populations. Numbers of these species within the isolated patches would likely dwindle over time due to indirect Project impacts or random demographic fluctuations, and these areas would be unlikely to be recolonized by individuals from source populations. As a result, small patches of habitat isolated from source populations would be functionally lost as a result of development.

Previous sections have discussed the potential for the Project to impact the hydrology, salinity, water quality, and plant species composition of wetlands that are known or presumed to support the salt marsh harvest mouse and salt marsh wandering shrew (see *Impacts of Alteration of Site Hydrology on Remaining Wetlands and Associated Species, Effects of Fresh Water Inputs on Salt Marsh Habitat and Associated Species, Potential Short-Term Impacts to Water Quality during Construction Phase, Potential Long-Term Impacts to Water Quality, and Potential Spread of Non-native, Invasive Plant Species* above). The mitigation measures prescribed to address these impacts will reduce their potential effects on the salt marsh harvest mouse and salt marsh wandering shrew to less than significant levels.

Domestic pets, cats in particular, may stray from the Project's residential areas and may depredate salt marsh harvest mice or salt marsh wandering shrews. Non-native mammals such as house mice and black and Norway rats, as well as urban-adapted natives such as raccoons, are likely to increase on the Project site following development. These species may compete with or prey on salt marsh harvest mice or salt marsh wandering shrews. This predation and

displacement would be a significant impact on these special-status small mammal populations. As discussed below under *Impacts to Sensitive Habitats and Species from Recreational Disturbance*, golfers and recreational users of the ACFCWCD and Mowry Slough levees may disturb, crush, or degrade habitat for salt marsh harvest mice and salt marsh wandering shrews as well. Planting of trees within the golf course will provide additional perches and nesting sites for raptors that may prey on these special-status species.

Residential lots and golf course development may be located in close proximity to pickleweed-dominated habitat that will not be filled or graded. Over time, it is likely that these habitats will be degraded by dumping of yard waste and trampling by residents and golfers. For the purpose of estimating indirect effects on habitat of these two species resulting from proximity of habitat to residential lots and the golf course, we have assumed the functional loss all pickleweed-dominated habitat within 100 ft of the limits of grading in these areas. These indirect impacts to habitat of the salt marsh harvest mouse and salt marsh wandering shrew total 3.92 ac.

Direct loss of habitat from Project construction, functional loss of habitat due to interruption of connectivity and indirect effects associated with proximity to residential development, and increased predation by human-associated species would result in a significant impact to the salt marsh harvest mouse and salt marsh wandering shrew, in addition to impacts from recreational disturbance and hydrologic/water quality impacts discussed elsewhere in this analysis.

Implementation of Mitigation Measures 1A-B, 2A-G, 3A-D, 4A, and 5A-B will reduce impacts of the Project to habitat of these two species, and implementation of Mitigation Measures 12A-B will reduce recreational impacts to individuals and habitat of these species. In addition, the following mitigation measures will be implemented to reduce impacts to salt marsh harvest mice and salt marsh wandering shrews to a less than significant level. In addition, Federal Endangered Species Act consultation with the USFWS would be necessary to obtain incidental take approval if take of the federally listed salt marsh harvest mouse will occur.

**Mitigation Measure 11A. Trapping to Determine Presence of the Salt Marsh Harvest Mouse and Salt Marsh Wandering Shrew.** With the exception of trapping that previously occurred in the vicinity of the former Pintail Duck Club, we are not aware of any trapping that has been conducted to determine the presence or absence of salt marsh harvest mice or salt marsh wandering shrews in specific portions of the Project area. For example, presence of these species has been assumed in the brackish marsh ditch that runs east-west through the central part of Area 4, in the seasonal wetlands on the O'Connor parcel, in the narrow strips of diked marsh along the remnant slough and ditch in the southern part of Area 4, and in the muted tidal salt marsh northwest of ACFCWCD Line D based on the presence of pickleweed habitat. If the Project proponent wishes to refine the determination regarding the location of suitable habitat for these species, it can (with approval from the USFWS and CDFG) have a trapping survey performed to determine where these species are and are not present. In the absence of such surveys, presence should be assumed in the aforementioned pickleweed-dominated locations.

**Mitigation Measure 11B. Avoid or Minimize Impacts to Salt Marsh Harvest Mouse and Salt Marsh Wandering Shrew Habitat.** Temporary disturbance to and permanent loss of salt marsh harvest mouse and salt marsh wandering shrew habitat will be avoided to the maximum

extent practicable. Although avoidance of wetland impacts was previously described under Mitigation Measure 1A, further attempts to avoid impacts to pickleweed-dominated habitats will be made. Temporary staging areas and construction access roads will be located away from suitable habitat for these species where practicable, and limits of wetlands that are to be avoided will be clearly demarcated with Environmentally Sensitive Area fencing (running along the limits of wetlands within 50 ft of grading and construction areas) to avoid inadvertent disturbance of any habitat outside of the designated construction areas during construction activities. This fencing can be combined with the barrier described in Mitigation Measure 11C below.

**Mitigation Measure 11C. Pickleweed Removal and Exclusion of Individuals from Construction Areas.** Under the supervision of a qualified biological monitor who is permitted by the USFWS to move salt marsh harvest mice out of the construction area, all salt marsh harvest mouse/wandering shrew habitat within the construction area will be removed by hand (e.g., including weed-whacker) prior to grading within a given area of harvest mouse/wandering shrew habitat. Vegetation requiring hand removal will be limited to pickleweed and other associated plants, such as saltgrass or bulrush, within pickleweed-dominated areas considered to be potential habitat for these mammals as depicted on Figure 6. The removal of pickleweed and other associated plants from these areas will encourage harvest mice and shrews to take refuge in areas that remain vegetated, outside the Project's direct impact areas, and discourage them from moving back into the direct impact areas. After at least 24 hours have elapsed since the removal of this pickleweed-dominated vegetation from harvest mouse/wandering shrew habitat areas, a barrier to exclude salt marsh harvest mice and salt marsh wandering shrews from impact areas will be installed at the perimeter of all Project construction areas that are located within 50 ft of potential salt marsh harvest mouse and salt marsh wandering shrew habitat. This barrier, which will be constructed under the guidance of a qualified biologist, will consist of a 3-ft tall, tight cloth or smooth plastic silt fence toed into the soil at least three inches deep and supported with stakes.

**Mitigation Measure 11D. Salvage of Individuals during Project Activities.** Mitigation Measure 11C will minimize the probability of salt marsh harvest mice and salt marsh wandering shrews entering the site but in addition, any individuals already present in the impact areas shall be salvaged and translocated to the exterior of the construction exclusion area to the extent practicable. Although detecting every individual on a site is not feasible due to these species' secretive habits, a qualified mammalogist should be present during removal of pickleweed-dominated vegetation, construction of the barrier fence, and initial clearing and grubbing within 10 ft of the barrier fence. The mammalogist would look for individual salt marsh harvest mice and salt marsh wandering shrews that may be present within the Project area. Any individuals detected would be captured and translocated to a safe location within the closest suitable, pickleweed-dominated habitat.

Trapping and removal of salt marsh harvest mice has been required by the USFWS and CDFG in areas with a high likelihood that the species is present. The direct impact areas for the current Project contain narrow and/or small patches of habitat that likely support sparse salt marsh harvest mouse and wandering shrew populations, if the species are present at all, and thus we are not proposing to require trapping and relocation.

**Mitigation Measure 11E. Habitat Mitigation.** Salt marsh harvest mouse and salt marsh wandering shrew habitat that is permanently lost due to fill, grading, shading, or isolation will be mitigated at a 3:1 ratio by the creation or restoration of pickleweed-dominated salt marsh on the Project site. Habitat for these species that is indirectly impacted due to proximity to residential and golf course development (i.e., habitat that is not directly filled but that is located within 100 ft of direct impact areas) will be mitigated at a 2:1 ratio by on-site habitat restoration. This lower ratio is appropriate because habitat within 100 ft of developed areas will retain some habitat quality for harvest mice and shrews, albeit degraded. This habitat restoration can occur in the same locations as habitat creation, restoration, or enhancement performed for impacts to wetlands as long as suitable conditions for these two mammal species are targeted.

A habitat mitigation and monitoring plan will be prepared that outlines the necessary steps for restoration; it will include a plan view graphic showing the target restoration activities, a brief seeding plan (species palette and application techniques) to re-vegetate the areas currently in agricultural production, and a monitoring and reporting plan with success criteria. The plan will include a recommended timeline for restoration activities and the establishment of suitable habitat. The mitigation and monitoring plan will be approved by the City of Newark, the USFWS, and the CDFG. The restoration work will begin in the same construction season as the initiation of grading within suitable salt marsh harvest mouse/salt marsh wandering shrew habitat, and restoration site grading will be completed within one year of initiation (or as otherwise determined by resource agency permits). All created mitigation habitats will be protected in perpetuity and will be placed into a land trust or under a conservation easement, or fee title will be transferred to the Refuge or a third-party non-profit entity that has been approved by the City and appropriate permitting agencies.

### **Impacts to Sensitive Habitats and Species from Recreational Disturbance**

The majority of sensitive habitats and high-quality habitat for special-status species on the Project site will not be directly graded or filled by Project activities. However, recreational activities in close proximity to these habitats have the potential to adversely affect sensitive habitats and species.

**Project Area 3.** A paved trail will be constructed on the east side of ACFCWCD Line D, on the west side of the proposed development area in Area 3. Although this trail will follow the aquatic habitat in the flood control channel, recreational use of this trail will have little effect on the channel itself. No extensive wetlands or high-quality special-status species habitat is present along this reach of the channel or elsewhere on or adjacent to the proposed development area on Area 3, and thus recreational disturbance within Area 3 will have little effect on sensitive habitats and species.

Residential development in Area 3 will increase the number of people in this part of Newark who might use the golf course in Area 4 or who might walk or bike on levees adjacent to higher-quality habitats in Area 4. Thus, development in Area 3 will likely result in an increase in recreational disturbance of sensitive habitats and species in Area 4 (discussed below).

**Project Area 4.** Two types of recreational activities are anticipated to occur, or increase in frequency and intensity, near sensitive habitats in Area 4 as a result of the Project: golfing on the new golf course and recreational use of the levees along the ACFCWCD channels and along Mowry Slough. Because the golf course abuts sensitive habitats such as wetlands, marsh, and aquatic habitats containing sensitive species, golfers are likely to disturb these habitats and species. Golfers may enter these habitats looking for stray balls, and the noise and human activity associated with golfing may disturb sensitive species in adjacent habitats or reduce the use of adjacent habitats by these species. Use of the golf cart bridge over the wetlands northwest of ACFCWCD Line D will result in disturbance of wetland-associated wildlife species. These activities may result in degradation of wetland, marsh, and aquatic habitats; crushing of special-status plants, salt marsh harvest mice, and salt marsh wandering shrews; disturbance of nesting birds, including special-status species such as northern harriers, burrowing owls, San Francisco common yellowthroats, and Alameda song sparrows; and disturbance of nesting, foraging, and roosting waterfowl, shorebirds, and other species.

The Project does not include the construction of formal trails in or adjacent to sensitive habitats or high-quality wildlife habitats. Although a portion of the Bay Trail may be established within Area 4 in the future, no Bay Trail improvements or planning are included in the Areas 3 and 4 Specific Plan, and such future improvements will be subject to separate environmental review when they are formally proposed.

People currently walk along the levees that line the ACFCWCD channels and along the levee that follows the eastern side of Mowry Slough infrequently and in small numbers, but with the residential development in Areas 3 and 4 and the presence of the golf course, more visitors to these levees are anticipated. The Project does not include any formal trails in these areas, nor any improvements to the levees to facilitate public use, but levee users may enter sensitive habitats, and the noise and human activity associated with levee use may disturb sensitive species in adjacent habitats or reduce the use of adjacent habitats by these species. These activities may result in degradation of wetland, marsh, and aquatic habitats; crushing of special-status plants, salt marsh harvest mice, and salt marsh wandering shrews; disturbance of nesting birds, including special-status species such as northern harriers, burrowing owls, San Francisco common yellowthroats, and Alameda song sparrows; and disturbance of nesting, foraging, and roosting waterfowl, shorebirds, and other species. Levee users may also bring dogs to these areas, and the dogs have the potential to harass or even depredate bird and mammal species in the sensitive habitats along these levees.

Due to the close proximity of the areas of potential recreational use (i.e., the golf course and levees) to sensitive habitats that are known to support special-status species and large numbers of foraging and roosting waterbirds (in the former Pintail Duck Club), the Project has the potential to result in significant impacts to sensitive habitats and species as a result of recreational activities. Implementation of the following mitigation measures will reduce impacts of recreational disturbance on sensitive habitats and species to a less than significant level.

**Mitigation Measure 12A. Design of the Golf Course to Minimize Disturbance.** As the design of the golf course progresses, an effort will be made to minimize, to the extent practicable, disturbance by golfers of adjacent sensitive habitats and species. For example, high-

use areas such as tees and greens should be set back from the edge of the golf course, and broad rough/out-of-bounds areas should occur along the interface between the golf course and sensitive habitats.

**Mitigation Measure 12B. Educational/Interpretive Signage.** On the golf course, areas that are “out of bounds” (which will include the artificial burrowing owl burrow complexes and all natural areas that are not directly filled during golf course construction) will be clearly marked as such, explaining the importance of preserving the ecological integrity of the adjacent natural areas. Signs will be erected along the ACFCWCD levees and along Mowry Slough describing the ecological value of adjacent wetland areas and instructing users to stay on the levee tops, stay out of sensitive habitats, and keep dogs on leashes.

## CUMULATIVE IMPACTS

CEQA mandates that the impacts of the Newark Areas 3 and 4 Specific Plan 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).

Areas 3 and 4 are the largest remaining tracts of relatively undeveloped land in Newark. However, other proposed development in Newark includes the Dumbarton Transportation Oriented Development project in Newark Area 2, and additional development in Area 3 as part of the Ohlone College Campus. Additional development planned in the region includes the Patterson Ranch development proposal in northern Fremont, additional development within the Pacific Commons Area in Fremont (including the potential addition of a stadium and 2000 housing units as a part of the Oakland Athletic's proposed move to Fremont), and the conversion of infill sites and redevelopment of areas within the City of Fremont. Each of these projects will impact some of the biological resources that will be impacted by the Newark Areas 3 and 4 Specific Plan. In contrast, the South Bay Salt Ponds Restoration Project will provide habitat for a number of tidal habitat-associated species, including the salt marsh harvest mouse and salt marsh wandering shrew, and will include enhancement of managed ponds specifically for use by waterbirds.

In the absence of Project-specific mitigation, the impacts resulting from the Newark Areas 3 and 4 Specific Plan Project that are considered "less than significant with mitigation" would all contribute to cumulatively significance impacts in the region. In particular, the cumulative losses of seasonal wetland habitat around the South Bay are significant, and both direct and indirect impacts resulting from the Newark Areas 3 and 4 Project would be significant without mitigation. However, the mitigation measures prescribed for all of these impacts will adequately mitigate the Project's contribution to these cumulative impacts.

The Project's impacts to wildlife movement and California tiger salamanders are negligible. Impacts to upland agricultural, ruderal, developed, and coastal scrub habitats and associated species, and to habitat for certain breeding and non-breeding special-status species, are likewise minimal, and do not contribute to significant cumulative impacts. As a result, no cumulatively significant impacts will result from this Project.

## COMPLIANCE WITH ADDITIONAL LAWS AND REGULATIONS

### 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 & Game Code

Migratory birds are also protected in and by the state of California. The State Fish and Game Code §3503 (and other sections and subsections) emulates the MBTA and protects birds' 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 and would constitute a significant impact.

Raptors (i.e., eagles, hawks, and owls) and their nests are specifically protected in California under Fish and Game Code Section 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."

#### Project Applicability

The vast majority of birds found on the Project site are protected under the MBTA and State Fish and Game Code. Project construction has 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 type of impact was not determined to be significant under CEQA for the species occurring on the Newark Areas 3 and 4 Project site, due to their local and regional abundance and/or 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. Avoidance.** Avoid nesting-season construction. Construction should be scheduled to avoid the nesting season to the extent feasible. The nesting season for most birds, including most raptors, in the South San Francisco Bay area extends from February through August.

**Measure 2. Pre-construction/Pre-disturbance Surveys.** If it is not possible to schedule demolition and construction between 1 September and 31 January, then pre-construction surveys for nesting birds should be conducted by a qualified ornithologist to ensure that no nests will be disturbed during Project implementation. This survey should be conducted no more than 14 days prior to the initiation of demolition/construction activities during the early part of the breeding season (February through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). During this survey, the ornithologist will inspect all trees and other potential nesting habitats (e.g., grasslands, buildings) in and immediately adjacent to the impact areas for nests. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the ornithologist will determine the extent of a construction-free buffer zone to be established around the nest (typically 250 ft for raptors and 50-100 ft for other species), to ensure that no nests of species protected by the MBTA or State Code will be disturbed during Project implementation.

**Measure 3. Inhibiting Nesting.** If vegetation is to be removed by the Project and all necessary approvals have been obtained, potential nesting substrate (e.g., bushes, trees, grass, burrows) that will be removed by the Project should be removed before the start of the nesting season to help preclude the initiation of nests that would otherwise be disturbed by breeding-season construction.

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## PERSONAL COMMUNICATION

Dr. Alan Launer, Center for Conservation Biology, Stanford University; pers. comm. to S. Rottenborn, 24 February 2006.

James Browning, Senior Fish and Wildlife Biologist, U.S. Fish and Wildlife Service; email to S. Rottenborn, 16 July 2008.

Meg Marriott, San Francisco Bay National Wildlife Refuge; email to S. Rottenborn, 14 July 2008 and telephone conversation with S. Rottenborn, 11 September 2008.

Kris Neuman, PRBO Conservation Science; pers. comm. to L. Henkel, 25 October 2004.

David Salsbery, Santa Clara Valley Water District; pers. comm. to David Johnston.

Dr. Sam Sweet, Department of Ecology and Evolutionary Biology, University of California, Santa Barbara; pers. comm. to Dr. Jeff Wilkinson, H. T. Harvey & Associates (10 February 2006) and Dr. Steve Rottenborn, H. T. Harvey & Associates (28 April 2006).