East Contra Costa County Habitat Conservation Plan Natural Community Conservation Plan

City of Brentwood
City of Clayton
City of Oakley
City of Pittsburg
Contra Costa County
ECCC Habitat Conservancy

East Contra Costa County Habitat Conservancy

Application Form and Planning Survey Report to Comply with and Receive Permit Coverage under the East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan

Project Applicant Information:

Project Name: East Contra Costa eBART Phase II Extension Project

Project Applicant's Company/Organization: San Francisco Bay Area Rapid Transit District ("BART")

Contact's Name: Rick Rattray, P.E.

Contact's Phone: 510-874-7319 Fax: 510-287-4896

Contact's Email: mrattra@bart.gov

Mailing Address: BART
300 Lakeside Drive LKS-21
Oakland, CA 94612

Project Description:

Lead Project Planner: Ellen Smith (BART) and Krystal Hinojosa (Conservancy)

Project Location: North of SR 4 right-of-way, south of UPRR tracks, east of Hillcrest Avenue, east to terminus of Willow Avenue.

Project APN(s) #: 052-030-013, 052-030-015, 052-030-016, 052-030-017, 052-030-018, 052-052-006, 052-052-018

Number of Parcels/Units: Seven [six (6) undeveloped parcels and one (1) developed parcel].

Size of Parcel(s): The seven parcels encompassing the project site total 64.15 acres; however, BART intends to acquire 40.13 acres for the project. Acres not acquired by BART (24.02 acres) will remain with the existing property owners.

Project Description/Purpose (Brief): eBART is a rail transit project that will extend approximately 10 miles from BART's current terminus at Pittsburg/Bay Point in the median of State Route (SR) 4 to a station just east of Hillcrest Avenue in the City of Antioch. eBART Phase II will involve construction of the eBART Hillcrest Avenue Station and parking lot, a maintenance facility, an access road, and maintenance of way tunnel between the tracks that will be in the median of SR 4 and the maintenance facility. Of these project components, only the Hillcrest Avenue Station parking lot (including the entry way to the station, which will be built in the median of SR 4), maintenance facility, and access road will occur on the parcels identified above and are the subject of this Planning Survey Report. Equipment storage and laydown areas will be within the construction footprint of the parking lot and maintenance facility. A new road will extend eastward from Sunset Drive into the project site. The portion of this road serving the parking lot is identified as Slatten Ranch Road and considered to be part of the parking lot component of the project; the portion of the road serving the

Template prepared by the
ECCC Habitat Conservancy

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maintenance facility is referred to as the access road and is considered to be part of the maintenance facility.

Biologist Information:

Biological/Environmental Firm: Cardno ENTRIX

Lead Contact: Sam Bacchini

Contact's Phone: 916 386 3850 Fax: 916 923 6251

Contact's Email: sam.bacchini@cardno.com

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Sacramento, CA 95825

East Contra Costa County HCP/NCCP Planning Survey Report for eBART Phase II Extension Project Participating Special Entity

I. Project Overview

Project proponent:	San Francisco Bay Area Rapid Transit District ("BART")
Project Name:	eBART Phase II Extension Project
Application Submittal Date:	January 5, 2012
Date taken to Governing Board:	January 11, 2012
Jurisdiction:	☐ Contra Costa County ☒ Participating Special Entity[1] ☐ City of Oakley ☐ City of Pittsburg ☐ City of Clayton ☐ City of Brentwood
Check appropriate Development Fee Zone(s):	☐ Zone I ☒ Zone IV ☐ Zone II ☐ Zone III See Figure 9-1 of the Final HCP/NCCP for a generalized development fee zone map. Detailed development fee zone maps by jurisdiction are available from the jurisdiction or at www.cocohcp.org.
Total Parcel Acreage:	40.13
Acreage of land to be permanently disturbed:[1]	37.91
Acreage of land to be temporarily disturbed:[2]	2.22

[1] *Acreage of land permanently disturbed* is broadly defined in the HCP/NCCP to include all areas removed from an undeveloped or habitat-providing state and includes land in the same parcel or project that is not developed, graded, physically altered, or directly affected in any way but is isolated from natural areas by the covered activity. Unless such undeveloped land is dedicated to the Preserve System or is a deed-restricted creek setback, the development fee will apply. The development fees were calculated with the assumption that all undeveloped areas within a parcel (e.g., fragments of undisturbed open space within a residential development) would be charged a fee; the fee per acre would have been higher had this assumption not been made. See Chapter 9 of the HCP/NCCP for details.

[2] *Acreage of land temporarily disturbed* is broadly defined in the HCP/NCCP as any impact on vegetation or habitat that does not result in permanent habitat removal (i.e. vegetation can eventually recover).

Project Description

City/County Application Number:

n/a

Anticipated Construction Date:

Construction is anticipated to start in early 2012 and end in early 2015.

Project Description:

Background and Project History. The San Francisco Bay Area Rapid Transit District ("BART") is proposing to extend transit services into east Contra Costa County from its existing Pittsburg/Bay Point BART Station in the unincorporated community of Bay Point near the City of Pittsburg. The project is generally known as "eBART" in reference to the extension of service to the "East" portion of Contra Costa County. The proposed project consists of an approximately 10-mile extension of transit service from the current BART terminus in Contra Costa County at the Pittsburg/ Bay Point BART Station to a point just east of Hillcrest Avenue in the City of Antioch. BART was issued take coverage through the East Contra Costa Habitat Conservancy ("Conservancy") on July 23, 2010 for an initial construction phase known as the eBART Phase I Project, consisting of 0.3 acres of permanently disturbed area. (The Phase I Project take coverage application requested approval to disturb a total of 3.8 acres, but 3.50 acres were unneeded, resulting in only 0.3 acres of take.)

Project Overview. This application covers the Hillcrest Avenue Station parking facility and a new road that will run alongside the parking lot, a maintenance facility that would be constructed east of the parking lot and an access road to the maintenance facility for use by BART employees. Figure 1 illustrates the project's regional location in eastern Contra Costa County and the project vicinity at the eastern end of the City of Antioch between SR 4 and the Union Pacific "Mococo Line." Table 1 and Figure 2 identify the parcels comprising the project site and the acreages for the key project components. Figure 3A presents the overall site plan for the eBART Phase II Project. The Hillcrest Avenue Station parking lot is in the western portion of the project site; the maintenance facility is east of the parking lot and connected to the parking lot via an access road.

TABLE 1.
eBART PHASE II – AFFECTED PARCELS

Project Component/ Assessor Parcel Number	Owner	Total Acreage of Parcel (approx)	Acreage Required for the Project (approx) [a.]
Hillcrest Station Parking Lot			
052-030-018	Parachini	15.39	15.39 (full take)
052-030-017	Parachini	18.67	5.66 (partial take)
Maintenance Facility			
052-030-015	Esver	1.94	1.94 (full take)
052-030-016	Duarte	2.03	2.03 (full take)
052-030-013	Antioch Paving Co.	5.23	5.23 (full take)
052-052-006	FKP, Inc.	0.48	0.40 (partial take)
052-052-018	FKP, Inc.	20.39	6.76 (partial take)
052-030-017	Parachini	18.67	0.02 (partial take)
Access Road (private road between the parking lot and the maintenance facility)			
052-030-017	Parachini	18.67	2.70 (partial take)

[a.] The portion of the total parcel acreage not acquired by BART will remain with the current property owners.

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FIGURE 1

Project Vicinity

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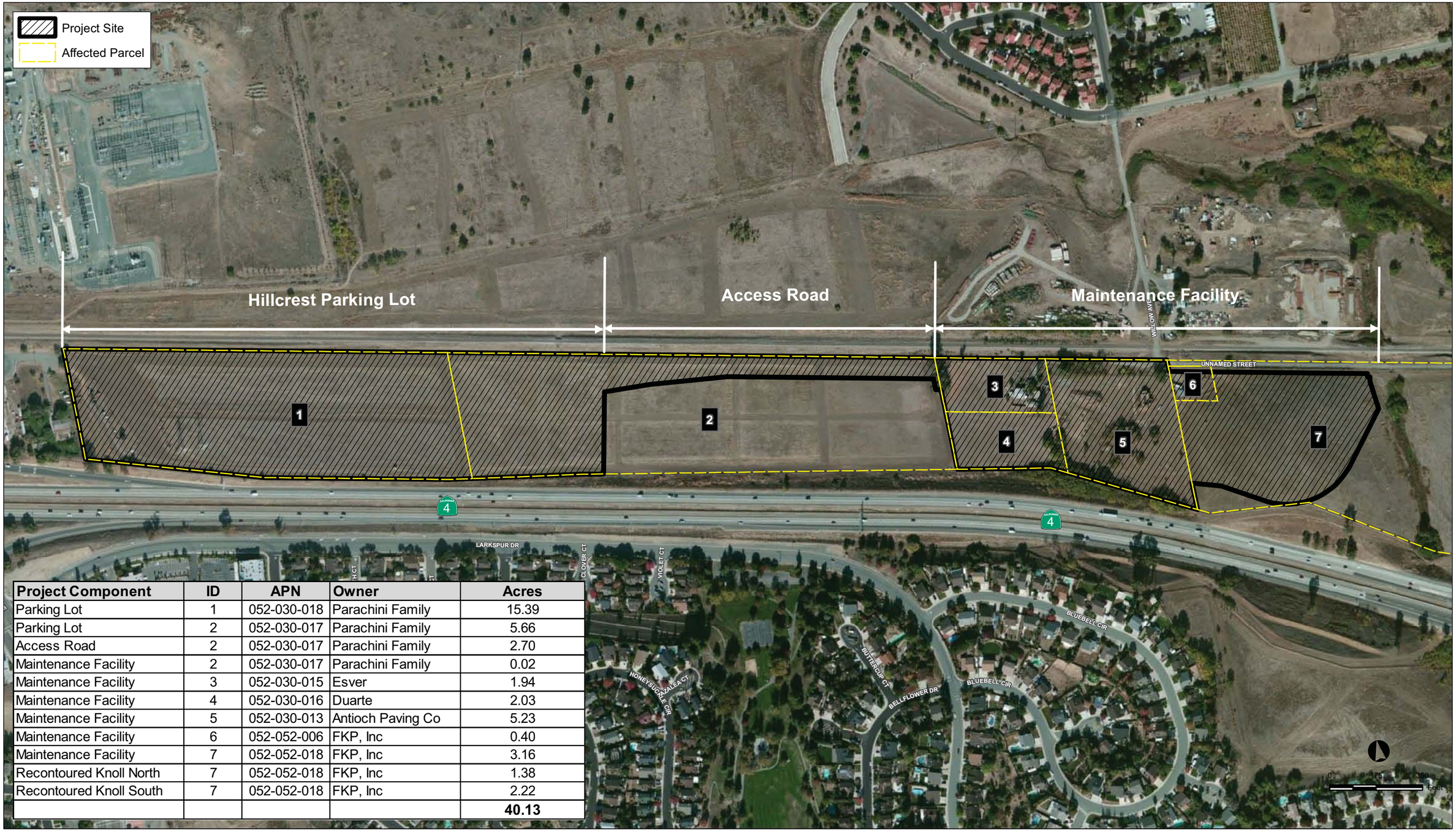
eBART Conservancy Application



Project Component	ID	APN	Owner	Acres
Parking Lot	1	052-030-018	Parachini Family	15.39
Parking Lot	2	052-030-017	Parachini Family	5.66
Access Road	2	052-030-017	Parachini Family	2.70
Maintenance Facility	2	052-030-017	Parachini Family	0.02
Maintenance Facility	3	052-030-015	Esver	1.94
Maintenance Facility	4	052-030-016	Duarte	2.03
Maintenance Facility	5	052-030-013	Antioch Paving Co	5.23
Maintenance Facility	6	052-052-006	FKP, Inc	0.40
Maintenance Facility	7	052-052-018	FKP, Inc	3.16
Recontoured Knoll North	7	052-052-018	FKP, Inc	1.38
Recontoured Knoll South	7	052-052-018	FKP, Inc	2.22
				40.13

Source: PGH Wong; Atkins, 2011.

AFFECTED PARCELS BY PROJECT COMPONENT
FIGURE 2

CITY OF ANTIOCH

HILLCREST AVE

FUTURE SLATTEN RANCH ROAD

2-LANE FRONTAGE ROAD

HILLCREST STATION PARKING LOT

100'WIDE U.P.R.R. (MOCOCO)

STORM WATER DETENTION BASIN

GRAVITY SEWER

MAINTENANCE BUILDING

YARD TRACKS

2-LANE MAINTENANCE FACILITY PRIVATE ACCESS ROAD

PARKING LOT

YARD ACCESS TUNNEL

3:1 CUT SLOPE

WESTBOUND SR4

EASTBOUND SR4

SR4

BART MEDIAN

CALIFORNIA DELTA HIGHWAY

MEDIAN STATION

PEDESTRIAN OVER-CROSSING

STATION ENTRY HOUSE

SR4

N

SCALE:NTS

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FOR DISCUSSION PURPOSES ONLY

12.28.11
HILLCREST TERMINAL CONSERVATION EXHIBIT 2A

Hillcrest Parking Lot and Maintenance Facility

OVERALL SITE PLAN

EAST CONTRA COSTA BART EXTENSION

FIGURE 3A

BART
SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

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CONSULTING ENGINEERS

Hillcrest Avenue Station Parking Lot (and Slatten Ranch Road). The eBART Hillcrest Station will be the terminus station. It will be sited in the median of SR 4, approximately 1,275 feet (0.24 miles) east of the intersection of Hillcrest Avenue and SR 4 in the City of Antioch. Figure 3B shows the site plan for the Hillcrest Avenue Station parking lot (as well as the station entry that will be sited in the parking lot and provide the connection to the station that will be in the median of SR 4) and the portion of the new road (Slatten Ranch Road) that will serve the parking area. The Hillcrest Avenue Station parking lot is in the northeast quadrant of the SR 4/Hillcrest Avenue interchange, approximately 400+ feet east of Hillcrest Avenue. BART will acquire 40.13 acres, of which 21.06 acres will used to accommodate the parking lot, the access road to the parking lot (Slatten Ranch Road), and the entrance to the station (this acreage includes all of APN 052-030-018 and a portion of APN 052-030-017). These facilities will be sited on fill above the existing grade. The parking lot will provide 1,000 parking spaces for opening day service (year 2015). (The eBART EIR provided environmental clearance for additional parking north of the Union Pacific Mococo Line, but this area may be needed only if ridership increases and service is not extended past Antioch. This area for additional parking is not part of the current application.)

The new road serving the parking lot will be constructed along the north side of the parking lot and follow the alignment of the City's proposed right-of-way for the future Slatten Ranch Road. Acreage for this road and affected land cover is accounted for in the land cover calculations for the Hillcrest Avenue Station parking lot. East of the parking lot, the new road will be private and used by BART to access the maintenance facility. This private access road is (2.70 acres) and accounted for in the land cover calculations for the maintenance facility.

Maintenance Facility. Under the eBART Project that was adopted by the BART Board of Directors ("BART Board") on April 22, 2009, maintenance activities were proposed to be performed primarily in the SR 4 median east of the Hillcrest Station platform. As engineering for the eBART project progressed, more of these activities, such as train fueling and train washing, are more efficiently accomplished outside the median. A Revised Project was adopted by the BART Board on April 21, 2011 that will expand the maintenance area outside the SR 4 median. The maintenance facility will include two shop tracks, one fueling track, and one wash track and a wheel truing machine will be located in the maintenance building. Figure 3C illustrates the conceptual site plan for the maintenance facility.

The maintenance facility will be approximately 19.07 acres (including 16.37 acres for the maintenance buildings, yard, and tailtracks and 2.70 acres for the access road between the parking lot and the maintenance facility). The area to be acquired for the access road involves portions of APN 052-030-017, and area to be acquired for the maintenance facility involves portions of three parcels (APN 052-052-006, APN 052-030-017, and APN 052-052-018) and all of three other parcels (APN 052-030-015, APN 052-030-016, and APN 052-030-013). BART may return the FKP parcel (APN 052-052-018) to the current property owner in a condition largely the same as currently exists. (See the letter from BART to the Conservancy and proposed slope easement deed for the property in Appendix H).

HILLCREST PARKING LOT
21.05 AC±

VIERA AVE
(FUTURE, BY OTHERS)

ACCESS ROAD INCLUDED IN MAINTENANCE SITE AREA OF DISTURBANCE. SEE SHEET 2

HILLCREST STATION PARKING LOT

WESTBOUND SR4

EASTBOUND SR4

BART MEDIAN

MEDIAN STATION

PEDESTRIAN OVER-CROSSING

STATION ENTRY HOUSE

USBR AND CROWN ZELLERBACH EASEMENTS

MATCH LINE
SEE DWG NO. 2C

N

80' 0' 80' 160'
GRAPHIC SCALE

**TENTATIVE & PRELIMINARY
FOR DISCUSSION PURPOSES ONLY**

12.28.11
HILLCREST TERMINAL CONSERVATION EXHIBIT REV_1.dwg

HILLCREST STATION PARKING LOT

Site Plan

SAN FRANCISCO BAY AREA
RAPID TRANSIT DISTRICT

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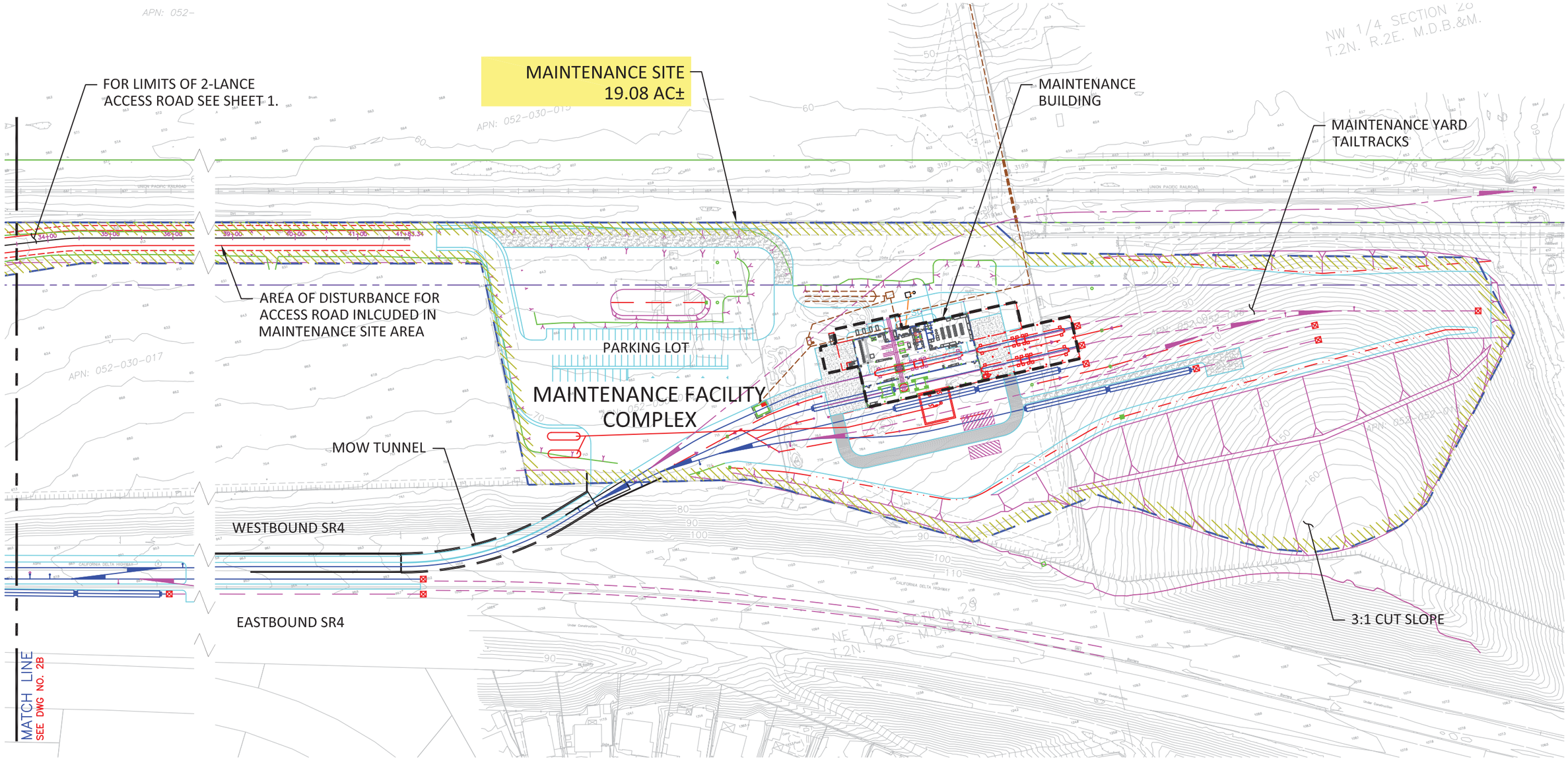
EAST CONTRA COSTA BART EXTENSION

AREA OF PROJECT DISTURBANCE EXHIBIT

FIGURE 3B



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HILLCREST TERMINAL CONSERVATION EXHIBIT REV_1.dwg

MAINTENANCE FACILITY

TENTATIVE & PRELIMINARY FOR DISCUSSION PURPOSES ONLY

N

80' 0' 80' 160'
GRAPHIC SCALE

Site Plan

BART
SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

PGH WONG ENGINEERING, INC. CONSULTING ENGINEERS

EAST CONTRA COSTA BART EXTENSION

AREA OF PROJECT DISTURBANCE EXHIBIT

FIGURE 3C

A small knoll (maximum elevation 169 feet) lies along the east side of the project site adjacent to SR 4 and rises approximately 90 feet above the surrounding terrain. Construction of the parking lot and the maintenance facility will require that the north side of the knoll be excavated to create a level grade for the maintenance buildings, yard, and tailtracks and to provide fill for the elevated parking lot and Slatten Ranch Road. The slope will be excavated to the top of the knoll, resulting in the removal of 295,700 cubic yards of soil. The excavation will leave a stable, finished face that will not exceed a 3:1 slope (horizontal:vertical). The slope/recontoured knoll is 3.60 acres; the southern 2.22 acres is not needed for operation or maintenance of the project, and BART may return this area to the current property owner in a condition largely the same as currently exists.

The eastern edge of the maintenance facility will not intrude into the freshwater marsh that is located approximately 80 feet further to the east and runs along the east side of the knoll. The maintenance facility will include its own stormwater detention basin and will need a stormwater connection. There is an existing stormwater line running north from approximately the east end of the BART park-and-ride parking lot that could accommodate a connection from the maintenance facility. Existing water supply lines are nearby and will be used for water supply. Wastewater will be conveyed through a line that will be extended either from Hillcrest Avenue or from the development north of the UPRR tracks along Willow Avenue to the maintenance facility. Sewer service will be provided by Antioch's sanitary sewer service. Electrical power also is available from overhead power lines along Willow Avenue. The only utility line relocation that could occur is at the western end of the project parking lot where a street light may be relocated to conform to the alignment of Slatten Ranch Road. This relocation would occur within the footprint of the Hillcrest Avenue Station parking lot.

II. Existing Conditions and Impacts

Land Cover Types

Table 2 below describes the land cover types found within the project site. There are two land cover types on the project site: ruderal and non-native grassland. The eBART Phase II Project will disturb 40.13 acres, 37.91 acres permanently and 2.22 acres temporarily. The area of temporary disturbance is a portion of a recontoured knoll that will be affected only during construction and may be returned to the property owner after the slope has been stabilized and reseeded. This area of temporary disturbance affects a portion of APN 052-052-018.

Permanent disturbance by project component is summarized below.

- The station parking lot includes the parking facilities for the Hillcrest Avenue Station, the station entry, and Slatten Ranch Road along the northern side of the parking lot that will provide access to the parking lot. The permanently disturbed area totals 21.06 acres of ruderal land and disked, non-native annual grassland.
- The maintenance facility includes trackwork, shops, repair facilities, the yard, and tailtracks. The facility totals 16.37 acres, and will permanently disturb 14.15 acres of ruderal land and grassland and temporarily disturb 2.22 acres of non-native annual grassland.
- The access road includes the private road that will be constructed between the station parking lot and the maintenance facility to serve the maintenance area. The permanently disturbed area totals 2.70 acres of non-native annual grassland.

Table 2
eBART PHASE II PROJECT SITE LAND COVER TYPES

Impact Acres on the following segments of the Project:	Station Parking Lot and Entry House	Maintenance Facility	Access Road	Other
Land Cover Type (acres, except where noted)	Acreage of Land to be "Permanently Disturbed" by Project[b]	Acreage of Land to be "Permanently Disturbed" by Project[b]	Acreage of Land to be "Permanently Disturbed" by Project[b]	Acreage of Land to be "Temporarily Disturbed" by Project[b]
Grassland[a]				
☒ Annual grassland	18.13	8.92	2.70	2.22
☐ Alkali grassland	N/A	N/A	N/A	N/A
☒ Ruderal	2.93	5.23	N/A	N/A
☐ Chaparral and scrub	N/A	N/A	N/A	N/A

Impact Acres on the following segments of the Project:	Station Parking Lot and Entry House	Maintenance Facility	Access Road	Other
Land Cover Type (acres, except where noted)	Acreage of Land to be "Permanently Disturbed" by Project[b]	Acreage of Land to be "Permanently Disturbed" by Project[b]	Acreage of Land to be "Permanently Disturbed" by Project[b]	Acreage of Land to be "Temporarily Disturbed" by Project[b]
☐ Oak savanna[a]	N/A	N/A	N/A	N/A
☐ Oak woodland	N/A	N/A	N/A	N/A
Jurisdictional wetlands and waters				
☐ Riparian woodland/scrub	N/A	N/A	N/A	N/A
☐ Permanent wetland[a]	N/A	N/A	N/A	N/A
☐ Seasonal wetland[a]	N/A	N/A	N/A	N/A
☐ Alkali wetland[a]	N/A	N/A	N/A	N/A
☐ Aquatic (Reservoir/Open Water)[a]	N/A	N/A	N/A	N/A
☐ Slough/Channel[a]	N/A	N/A	N/A	N/A
☐ Pond[a]	N/A	N/A	N/A	N/A
☐ Stream (acres) [a, d]	N/A	N/A	N/A	N/A
☐ Total stream length (feet) [a, d]	N/A	N/A	N/A	N/A
Stream length by width category				
☐ < 25 feet wide	N/A	N/A	N/A	N/A
☐ > 25 feet wide	N/A	N/A	N/A	N/A
Stream length by type and order[e]				
☐ Perennial	N/A	N/A	N/A	N/A
☐ Intermittent	N/A	N/A	N/A	N/A
☐ Ephemeral, 1st or 2nd order	N/A	N/A	N/A	N/A
☐ Ephemeral, 3rd or higher order	N/A	N/A	N/A	N/A
Irrigated agriculture[a]				
☐ Cropland	N/A	N/A	N/A	N/A
☐ Pasture	N/A	N/A	N/A	N/A
☐ Orchard	N/A	N/A	N/A	N/A
☐ Vineyard	N/A	N/A	N/A	N/A
Other				
☐ Nonnative woodland	N/A	N/A	N/A	N/A
☐ Wind turbines	N/A	N/A	N/A	N/A
Developed*				
☐ Urban	N/A	N/A	N/A	N/A
☐ Aqueduct	N/A	N/A	N/A	N/A
☐ Turf	N/A	N/A	N/A	N/A
☐ Landfill	N/A	N/A	N/A	N/A

Impact Acres on the following segments of the Project:	Station Parking Lot and Entry House	Maintenance Facility	Access Road	Other
Land Cover Type (acres, except where noted)	Acreage of Land to be "Permanently Disturbed" by Project[b]	Acreage of Land to be "Permanently Disturbed" by Project[b]	Acreage of Land to be "Permanently Disturbed" by Project[b]	Acreage of Land to be "Temporarily Disturbed" by Project[b]
Uncommon Vegetation Types (subtypes of above land cover types)				
☐ Purple needlegrass grassland	N/A	N/A	N/A	N/A
☐ Wildrye grassland	N/A	N/A	N/A	N/A
☐ Wildflower fields	N/A	N/A	N/A	N/A
☐ Squirreltail grassland	N/A	N/A	N/A	N/A
☐ One-sided bluegrass grassland	N/A	N/A	N/A	N/A
☐ Serpentine grassland	N/A	N/A	N/A	N/A
☐ Saltgrass grassland (= alkali grassland)	N/A	N/A	N/A	N/A
☐ Alkali sacaton bunchgrass grassland	N/A	N/A	N/A	N/A
☐ Other uncommon vegetation types (please describe)	N/A		N/A	N/A
Uncommon Landscape Features or Habitat Elements				
☐ Rock outcrop	N/A	N/A	N/A	N/A
☐ Cavea	N/A	N/A	N/A	N/A
☐ Springs/seeps	N/A	N/A	N/A	N/A
☐ Scalds	N/A	N/A	N/A	N/A
☐ Sand deposits	N/A	N/A	N/A	N/A
☐ Mines[a]	—	—		—
☐ Buildings (bat roosts) [a]	—	—		—
☐ Potential nest sites (trees or cliffs) [a]	—	—		—
TOTAL (Acre to be impacted)	21.06	14.15	2.70	2.22

[a] Designates habitat elements that may trigger specific survey requirements and/or best management practices for key covered wildlife species. See Chapter 6 in the HCP/NCCP for details.

[b] See Section 9.3.1 of the HCP/NCCP for a definition of "permanently disturbed" and "temporarily disturbed." In nearly all cases, all land in the subject parcel is considered permanently disturbed. "Other" represents portions of a slope that will not be needed for project operations and will be returned to the property owner after construction.

[c] Dedication of land in lieu of fees must be approved by the local agency and the Implementing Entity before they can be credited toward HCP/NCCP fees. See Section 8.6.7 on page 8-32 of the Plan for details on this provision. Stream setback requirements are described in Conservation Measure 1.7 in Section 6.4.1 and in Table 6-2.

[d] Specific requirements on streams are discussed in detail in the HCP/NCCP. Stream setback requirements pertaining to stream type and order can be found in Table 6-2. Impact fees and boundary determination methods pertaining to stream width can be found in Table 9-5. Restoration/creation requirements in lieu of fees depend on stream type and can be found in Tables 5-16 and 5-17.

[e] See glossary (Appendix A) for definition of stream type and order.

Totals may not sum due to rounding.

Field-Verified Land Cover Map

Land Cover. Figure 4A includes two land cover maps: Figure 4A-1 for the Hillcrest Station Parking Lot (including Slatten Ranch Road) and Figure 4A-2 for the maintenance facility and access road). These maps identify the area of disturbance, including both temporary and permanent effects. The 21.06-acre Hillcrest Avenue Station parking lot, will affect 2.93 acres of ruderal land and 18.12 acres of disked non-native annual grassland. The 2.70-acre access road serving the maintenance facility will affect non-native annual grassland, and the 16.38-acre maintenance facility will affect 5.23 acres of ruderal land and 11.14 acres of non-native annual grassland (including 8.92 acres of permanent disturbance and 2.22 acres of temporary disturbance). Representative photos of the project site are provided in Figure 4B at the end of the Planning Survey Report.

It is noted that Figure 4A-2 for the maintenance facility identifies an "MOW Tunnel." The "maintenance of way" tunnel will connect the eBART tracks in the median of SR 4 with the maintenance facility. The tunnel will be constructed on Caltrans property by Caltrans as part of the SR 4 widening and improvements and is not a part of this application or within the area of disturbance for the maintenance facility.

Arborist Survey and Tree Removal. In addition to the field surveys performed to identify land cover and habitat types, an arborist survey was conducted on October 10, 2011 to comply with Mitigation Measure BIO-6.1 from the eBART EIR and the eBART Mitigation Monitoring and Reporting Program. The survey covered all properties except the Antioch Paving property due to lack of access; however, some of the trees on the Antioch Paving property were observed from offsite. A copy of this report is included in Appendix G and contains maps identifying the location of the trees.

A total of 25 established trees (trees with a diameter at breast height [dbh] of 10 inches or greater) were documented in the survey area, including a Peruvian pepper tree (*Schinus molle*) with a dbh of 73.5 inches. Additional trees with dbh of less than 10 inches are also present, almost all of which are Tree of Heaven (*Ailanthus altissima*). Most of the trees currently occurring within the project site, with the exception of the Peruvian pepper tree, will be removed during project construction.

A nest structure survey conducted on October 10, 2011 documented the presence of two nest structures. These locations are identified in Figure 5, presented later in this application under results of species-specific planning surveys. The first nest is on the project site within a cluster of trees where the maintenance facility is proposed. The nest structure was loose and a substantial amount of light could be seen coming through when viewed from beneath, implying that it had not been in use during the previous season. The second nest is not on the project site. It is a small passerine bird nest in a Tree of Heaven within the Caltrans right-of-way and adjacent to APN 052-030-016, which BART will acquire for a portion of the maintenance facility. This nest is not within the project area of disturbance or land to be acquired by BART. In order to avoid potential impacts to any special status or Migratory Bird Treaty Act (MBTA) species, BART will remove trees within the project limits prior to the nesting season beginning March 15. It is BART's understanding that Caltrans will likewise remove trees within its right-of-way.

Source: PGH Wong; Atkins, 2011.
Parking lot plans are preliminary and subject to change
All land cover within Hillcrest Parking Lot Area would be permanently disturbed.

LAND COVER WITHIN HILLCREST PARKING LOT AREA
FIGURE 4A-1

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Source: PGH Wong; Atkins, 2011.
Access road and maintenenance facility area are preliminary and subject to change.
All land cover within the maintenance facility and access road area would be permanently disturbed except for 2.22 acres identified in the figure as the recontoured knoll. This area is considered to be temporarily disturbed.

LAND COVER WITHIN MAINTENANCE FACILITY AND ACCESS ROAD AREA
FIGURE 4A-2

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100021766

Jurisdictional Wetlands and Waters

Jurisdictional wetlands and waters are defined on pages 1-18 and 1-19 of the Final HCP/NCCP as the following land cover types: permanent wetland, seasonal wetland, alkali wetland, aquatic, pond, slough/channel, and stream. (It should be noted that definitions of these features differ for state and federal jurisdictions.)

There are no jurisdictional wetlands and waters within the area of disturbance.

Species-Specific Planning Survey Requirements

Information on the species that have a potential to occur on the eBART Phase II Project site, based on the land cover types found onsite, are identified in Table 3A. The results of the planning surveys for these species follow Table 3A. The species-specific planning survey requirements that were followed are described in more detail in Section 6.4.3 of the HCP/NCCP.

TABLE 3A
SPECIES-SPECIFIC PLANNING SURVEY REQUIREMENTS TRIGGERED BY LAND COVER TYPES AND HABITAT ELEMENTS ON THE PROJECT SITE
(Based on Chapter 6 of the Final HCP/NCCP**)**

Land Cover Type in the project area?	Species	Habitat Element in the project area?	Planning Survey Requirement
☒ Grasslands, oak savanna, agriculture, ruderal	San Joaquin kit fox	Assumed if within modeled range of species	Identify and map potential breeding and denning habitat and potential dens if within modeled range of species (see Appendix D of HCP/NCCP).
	Western burrowing owl	Assumed	Identify and map potential breeding habitat.
☐ Aquatic (ponds, wetlands, streams, slough, channels, & marshes)	Giant garter snake	☐ Aquatic habitat accessible from San Joaquin River	Identify and map potential habitat.
	California tiger salamander	☐ Ponds and wetlands in grassland, oak savanna, oak woodland ☐ Vernal pools ☐ Reservoirs ☐ Small lakes	Identify and map potential breeding habitat. Document habitat quality and features. Provide Implementing Entity with photo-documentation and report.

Land Cover Type in the project area?	Species	Habitat Element in the project area?	Planning Survey Requirement
	California red-legged frog	☐ Slow-moving streams, ponds, and wetlands	Identify and map potential breeding habitat. Document habitat quality and features. Provide Implementing Entity with photo-documentation and report.
☐ Seasonal wetlands	Covered shrimp	☐ Vernal pools ☐ Sandstone rock outcrops ☐ Sandstone depressions	Identify and map potential breeding habitat.
Any	Townsend's big-eared bat	☐ Rock formations with caves ☐ Mines ☐ Abandoned buildings outside urban areas	Map and document potential breeding or roosting habitat.
	Swainson's hawk	☒ Potential nest sites (trees within species' range usually below 200')	Inspect large trees for presence of nest sites.
	Golden eagle	☐ Potential nest sites (secluded cliffs with overhanging ledges; large trees)	Document and map potential nests.

[a] Vernal pool fairy shrimp, vernal pool tadpole shrimp, longhorn fairy shrimp, and midvalley fairy shrimp.

Results of Species-Specific Planning Surveys Required in Table 3A

Planning Surveys

Species specific planning surveys were conducted for burrowing owl, Swainson's hawk, San Joaquin kit fox, and special-status plants on April 14, 2011, by Atkins biologists Ron Walker and Sam Bacchini. The project site falls within the modeled ranges for these species as indicated in Appendix D of the HCP/NCCP. A migratory bird nest structure survey was conducted on October 10, 2011 by Sam Bacchini, now at Cardno ENTRIX.

Vegetation and Wildlife Species Observed

The portion of the project site that will be occupied by the parking lot and the access road consists of annually disked grassland. The knoll at the eastern end of the project site where the maintenance facility will be located consists of grassland dominated by non-native annual grasses and forbs. Plant species observed during the survey consisted primarily of non-native annual grasses and forbs including wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), Italian ryegrass (*Lolium multiflorum*), foxtail barley (*Hordeum murinum* ssp. *leporinum*), vetch (*Vicia* sp.), wild mustard (*Brassica* sp.), clover (*Trifolium* sp.), prickly ox-tongue (*Picris echioides*), lupine (*Lupinus bicolor*), red stemmed filaree (*Erodium cicutarium*), bur clover (*Medicago polymorpha*), wild radish (*Raphanus sativa*), sow thistle

(*Sonchus asper*), yellow star thistle (*Centaurea solstitialis*), cheeseweed mallow (*Malva parviflora*), artichoke (*Cynara scolymus*), milk thistle (*Silybum marianum*), nettle (*Urtica* sp.), shepherd's purse (*Capsella bursa-pastoris*), and curly dock (*Rumex crispus*), Native species observed included common fiddleneck (*Amsinckia menziesii*), miner's lettuce (*Claytonia perfoliata*), brodiaea (*Brodiaea* sp.), gum plant (*Grindelia* sp.), and red maids (*Calandrinia ciliata*).

None of the covered and no-take plant species listed for annual grasslands was observed during the April 14, 2011 survey, or in previous surveys conducted for this project. Due to the frequency of soil disturbance and the dominance of aggressive non-native annual grasses and forbs, presence of covered and no-take plant species associated with annual grasslands are unlikely to be present.

Tree and shrub species observed within the site include coyote brush (*Baccharis pilularis*), black walnut (*Juglans hindsii*), coast live oak (*Quercus agrifolia*), gum (*Eucalyptus* spp.), black wood acacia (*Acacia melanoxylon*), elm (*Ulmus* sp.), tree of heaven (*Ailanthus altissima*), bottle tree (*Brachychiton populneus*), and oleander (*Nerium oleander*). .

Wildlife species or wildlife signs observed during the April 14, 2011 survey as well as previous surveys for this project include American crow (*Corvus brachyrhynchos*), western scrub jay (*Aphelocoma californica*), red-winged blackbird (*Agelaius phoeniceus*), Brewer's blackbird (*Euphagus cyanocephalus*), American kestrel (*Falco sparverius*), mourning dove (*Zenaida macroura*), mockingbird (*Mimus polyglottos*), black phoebe (*Sayornis nigricans*), northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus beecheyi*), black-tailed hare (*Lepus californicus*), western fence lizard (*Sceloporus occidentalis*), and Sierran tree frog (*Pseudacris sierra*).

Western Burrowing Owl

The project site supports potential habitat for burrowing owl. The main habitat types on the site are grassland and ruderal vegetation communities, composed of non-native annual grasses and forbs. In one aspect, the site is not optimum habitat for burrowing owls because of the height of the vegetation; it ranges from 12 inches tall to over 36 inches tall (burrowing owls prefer lower vegetation height for better view of approaching predators). The site does, however, support California ground squirrels which provide burrows for burrowing owl nest sites. Along the northern and southern borders of the site, there are 20-40 ground squirrel burrows, the majority of which are located along the fence rows. On the far eastern portion of the project site, there is a knoll that also supports ground squirrels; eight burrows were located on the western side of the knoll, and seven burrows were located on the northern side of the knoll. Because the vegetation was tall, it is assumed that there are several more burrows that were not located during the field survey. There were no areas that supported high density ground squirrel colonies. Surveys conducted in 2008, 2009, and 2010 detected one pair of burrowing owls on the knoll at the eastern end of the project site and another pair beyond the project site on the north face of another knoll east of the drainage east of the project site. For this 2011-2012 take coverage application, the April 14, 2011 species specific planning surveys did not locate any burrowing owls within the project site. If owls were present, there would have been some sign of nesting activity such as owls present, whitewash, castings, prey remains, or feathers. None of these

signs were found. Although burrowing owls were not present, it does not preclude them from using the site and preconstruction surveys are warranted. See Figure 5 for previously documented burrowing owl locations in the project vicinity.

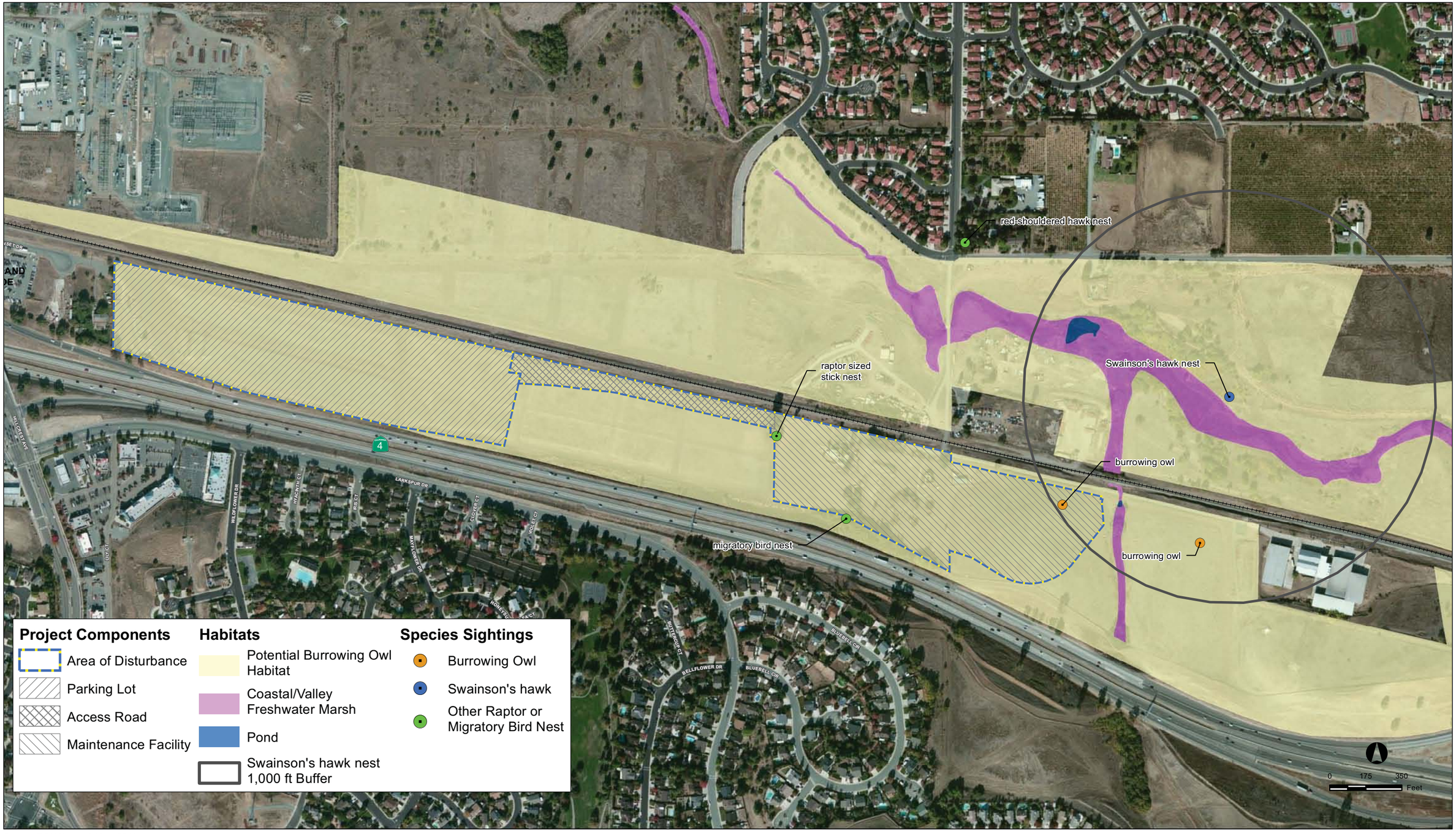
San Joaquin Kit Fox

The project site supports marginal habitat for San Joaquin kit fox. The main habitat types on the site are grassland and ruderal vegetation communities, composed of non-native annual grasses and forbs. The site falls within the HCP/NCCP modeled range for the San Joaquin kit fox. The site is considered marginal because of its isolated location in regards to recorded occurrences, kit fox movement corridors, and the suitable core habitat area. SR 4 and urban residential areas act as a barrier to the project site. Although the site provides suitable foraging habitat (ruderal land and grassland) for the San Joaquin kit fox, no breeding or denning habitat is available on site. No dens or other San Joaquin kit fox signs (scat, prey bones, etc.) were observed within the site. The urban nature of the location and the lack of connectivity to other suitable areas most likely preclude the presence of San Joaquin kit fox. Species specific planning surveys conducted in 2008 and 2009 did not record any kit fox use of the project site. The April 14, 2011 species specific planning surveys for kit fox did not find any active fox dens or burrows greater than five inches in diameter. Although the site is marginal habitat for San Joaquin kit fox, it does fall within the suitable low use habitat area and therefore preconstruction surveys are warranted.

Swainson's Hawk

The project site and surrounding area contain suitable foraging and nesting habitat for Swainson's hawk. Previous species specific surveys conducted in 2008 and 2009 located one Swainson's hawk nest approximately 800 feet to the northeast of the project site. The April 14, 2011 survey observed one Swainson's hawk soaring near this nest site, which is considered still active.

On the project site, there are several large eucalyptus trees located in the eastern portion of the site (near a single family farm house on the proposed site of the maintenance facility) that represent suitable nesting habitat for Swainson's hawk. The April 14, 2011 survey did not observe any Swainson's hawk nests or any other stick nests in these eucalyptus trees on the project site that would be suitable for raptor nests. These trees were surveyed again on October 10, 2011. During this latest survey, a single raptor sized stick nest was observed in one of the eucalyptus trees (the southernmost tree in the group of trees). The nest was fairly low in the tree and seemed to be in a state of disrepair since light could be seen through it when viewed from beneath. A Swainson's hawk nest was identified within this stand of eucalyptus in 2009 by another biological firm during studies conducted for the Hillcrest Station Area Specific Plan. While it is unclear if the nest observed during the October 2011 survey is the same as the 2009 nest, no other nest structures were observed in the eucalyptus stand, and based on the condition of this nest in October 2011, it does not appear to have been used in the past season. Nevertheless, these trees represent suitable Swainson's hawk or other raptor nesting habitat; therefore, preconstruction surveys and the implementation of the avoidance and minimization measures for Swainson's hawk and/or other raptors are warranted. See Figure 5 for the nest locations.



Source: PGH Wong; Atkins, 2011.

HCP COVERED SPECIES AND HABITATS IN THE eBART PHASE II PROJECT VICINITY

FIGURE 5

Covered and No-Take Plants

Based on the land cover types found on the project site and identified in Table 2, none of the boxes for covered and no-take plant species in Table 3B are checked. Planning surveys for covered and no-take plant species associated with annual grasslands were conducted on April 14, 2011. No covered or no take plant species associated with annual grasslands were observed during the seasonally timed survey. Covered and no-take plant species associated with other habitat types including oak savanna, oak woodland, chaparral and scrub, alkali grassland, alkali wetland, and seasonal wetland would not occur on the project site since none of these habitat types are present. Of the covered no-take plant species listed in Table 3B for annual grasslands, only two species (big tarplant, and Brewer's dwarf flax) bloom later in the year such that the April 2011 survey did not occur during their blooming period. While the April 2011 surveys were not conducted during the blooming period for big tarplant, this species was not identified in the area during surveys conducted in previous years. Additionally, the vegetative state for this species is distinctive and would have been evident during the April 2011 survey. All plants observed during the April 2011 survey were identified to a level sufficient to eliminate them as potential special-status species. Furthermore, the level of regular historic disturbance from disking and other activities, and the dominance of non-native plant species (and corresponding lack of native grassland species) suggest that occurrence of the big tarplant in the project area is very unlikely. With respect to the Brewer's dwarf flax, this species is restricted to grassland areas within 500 feet of oak woodland and chaparral or scrub habitats. Since no oak woodlands, chaparral or scrub habitats occur within 500 feet of the project site, no habitat for the Brewer's dwarf flax is present.

TABLE 3B
COVERED AND NO-TAKE PLANT SPECIES, TYPICAL HABITAT CONDITIONS, AND TYPICAL BLOOMING PERIODS

Land Cover Type in the project area?	Plant Species	Covered (C) or No-Take (N)?	Typical Habitat or Physical Conditions, if Known	Typical Blooming Period[a]
☐ Oak savanna	Diablo Helianthella (*Helianthella castanea*)	C	Elevation above 650 feet[b]	Mar–Jun
	Mount Diablo fairy-lantern (*Calochortus pulchellus*)	C	Elevation between 650 and 2,600 feet[b]	Apr–Jun
☐ Oak woodland	Brewer's dwarf flax (*Hesperolinon breweri*)	C		May–Jul
	Diablo Helianthella (*Helianthella castanea*)	C	Elevation above 650 feet[b]	Mar–Jun
	Mount Diablo fairy-lantern (*Calochortus pulchellus*)	C	Elevation between 650 and 2,600 feet[b]	Apr–Jun
	Showy madia (*Madia radiata*)	C		Mar–May
☐ Chaparral and scrub	Brewer's dwarf flax (*Hesperolinon breweri*)	C		May–Jul

Land Cover Type in the project area?	Plant Species	Covered (C) or No-Take (N)?	Typical Habitat or Physical Conditions, if Known	Typical Blooming Period[a]
	Diablo Helianthella (*Helianthella castanea*)	C	Elevation above 650 feet[b]	Mar–Jun
	Mount Diablo buckwheat (*Eriogonum truncatum*)	N		Apr–Sep; uncommonly Nov–Dec.
	Mount Diablo fairy-lantern (*Calochortus pulchellus*)	C	Elevation between 650 and 2,600 feet[b]	Apr–Jun
	Mount Diablo Manzanita (*Arctostaphylos auriculata*)	C	Elevation between 700 and 1,860 feet; restricted to the eastern and northern flanks of Mt. Diablo[b]	Jan–Mar
☐ Alkali grassland	Brittlescale (*Atriplex depressa*)	C	Restricted to soils of the Pescadero or Solano soil series; generally found in southeastern region of plan area[b]	May–Oct
	Caper-fruited tropidocarpum (*Tropidocarpum capparideum)*	N		Mar-Apr
	Contra Costa goldfields (*Lasthenia conjugens*)	N	Generally found in vernal pools	Mar–Jun
	Recurved larkspur (*Delphinium recurvatum*)	C		Mar–Jun
	San Joaquin spearscale (*Atriplex joaquiniana*)	C		Apr-Oct
☐ Alkali wetland	Alkali milkvetch (*Astragalus tener* ssp. *tener*)	N		Mar–Jun
	Brittlescale (*Atriplex depressa*)	C	Restricted to soils of the Pescadero or Solano soil series; generally found in southeastern region of plan area[b]	May–Oct
	San Joaquin spearscale (*Atriplex joaquiniana*)	C		Apr–Oct
☒ Annual grassland	Alkali milkvetch (*Astragalus tener* ssp. *tener*)	N		Mar–Jun
	Big tarplant (*Blepharizonia plumosa*)	C	Elevation below 1500 feet[b]	Jul–Oct
	Brewer's dwarf flax (*Hesperolinon breweri*)	C	Restricted to grassland areas within a 500+ buffer from oak woodland and chaparral/scrub[b]	May–Jul

Land Cover Type in the project area?	Plant Species	Covered (C) or No-Take (N)?	Typical Habitat or Physical Conditions, if Known	Typical Blooming Period[a]
	Contra Costa goldfields (*Lasthenia conjugens*)	N	Generally found in vernal pools	Mar–Jun
	Diamond-petaled poppy (*Eschscholzia rhombipetala*)	N		Mar–Apr
	Large-flowered fiddleneck (*Amsinckia grandiflora*)	N		Apr–May
	Mount Diablo buckwheat (*Eriogonum truncatum*)	N		Apr–Sep; uncommonly Nov–Dec
	Mount Diablo fairy-lantern (*Calochortus pulchellus*)	C	Elevation between 650 and 2,600[b]	Apr–Jun
	Round-leaved filaree (*California macrophylla*)[1]	C		Mar–May
	Showy madia (*Madia radiata*)	C		Mar–May
☐ Seasonal wetland	Adobe navarretia (*Navarretia nigelliformis* ssp. *nigelliformis*)	C	Generally found in vernal pools[b]	Apr–Jun
	Alkali milkvetch (*Astragalus tener* sp. *tener*)	N		Mar–Jun
	Contra Costa goldfields (*Lasthenia conjugens*)	N	Generally found in vernal pools	Mar–Jun

[a] From California Native Plant Society. 2007. *Inventory of Rare and Endangered Plants* (online edition, v7-07d). Sacramento, CA. Species may be identifiable outside of the typical blooming period; a professional botanist shall determine if a covered or no take plant occurs on the project site.

[b] See Species Profiles in Appendix D of the Final HCP/NCCP.

III. Species-Specific Monitoring and Avoidance Requirements

This section discusses subsequent actions that are necessary to ensure project compliance with HCP requirements. Survey requirements and Best Management Practices pertaining to selected covered wildlife species are detailed in Section 6.4.3, *Species-Level Measures*, beginning on page 6-36 of the Final HCP/NCCP.

Preconstruction Surveys for Selected Covered Wildlife

Table 4 identifies the species for which preconstruction surveys or notifications are required based on the results of the planning surveys.

TABLE 4
APPLICABLE PRECONSTRUCTION SURVEY AND NOTIFICATION REQUIREMENTS

(Based on Land Cover Types and Habitat Elements identified In Table 3A)

Species	Preconstruction Survey and Notification Requirements
☐ None	
☒ San Joaquin kit fox (p. 6-38)	Map all dens (>5 in. diameter) and determine status. Determine if breeding or denning foxes are in the project area. Provide written preconstruction survey results to FWS within 5 working days after surveying.
☒ Western burrowing owl (p. 6-40)	Map all burrows and determine status. Document use of habitat (e.g. breeding, foraging) in/near disturbance area (within 500 ft.)
☐ Giant garter snake (p. 6-44)	Delineate aquatic habitat up to 200 ft. from water's edge. Document any sightings of garter snake.
☐ California tiger salamander (p. 6-46) (notification only)	Provide written notification to USFWS and CDFG regarding timing of construction and likelihood of occurrence in the project area.
☐ California red-legged frog (p. 6-47) (notification only)	Provide written notification to USFWS and CDFG regarding timing of construction and likelihood of occurrence in the project area.
☐ Covered shrimp species (p. 6-47)	Document and evaluate use of all habitat features (e.g., vernal pools, rock outcrops). Document occurrences of covered shrimp.
☐ Townsend's big-eared bat (p. 6-37)	Determine if site is occupied or shows signs of recent occupation (guano).
☒ Swainson's hawk (p. 6-42)	Determine whether nests are occupied.
☐ Golden eagle (p. 6-39)	Determine whether nests are occupied.

Note: Page numbers refer to the HCP/NCCP.

Preconstruction Surveys as Required for Selected Covered Wildlife in Table 4

This section describes the preconstruction surveys or notification conditions applicable to any species checked in Table 4. All preconstruction surveys shall be conducted in accordance with the requirements set forth in Section 6.4.3, Species-Level Measures, and Table 6-1 of the HCP/NCCP.

Burrowing Owl

Prior to any ground disturbance related to covered activities, a USFWS/CDFG approved biologist will conduct a preconstruction survey in areas identified in the planning surveys as having potential burrowing owl habitat. The surveys will establish the presence or absence of western burrowing owl and/or habitat features and evaluate use by owls in accordance with CDFG survey guidelines (California Department of Fish and Game 1993).

On the parcel where the activity is proposed, the biologist will survey the proposed disturbance footprint and a 500-foot radius from the perimeter of the proposed footprint to identify burrows and owls. Adjacent parcels under different land ownership will not be surveyed. Surveys should take place near sunrise or sunset in accordance with CDFG guidelines. All burrows or burrowing owls will be identified and mapped. Surveys will take place no more than 30 days prior to construction. During the breeding season (February 1–August 31), surveys will document whether burrowing owls are nesting in or directly adjacent to disturbance areas. During the non-breeding season (September 1–January 31), surveys will document whether burrowing owls are using habitat in or directly adjacent to any disturbance area. Survey results will be valid only for the season (breeding or non-breeding) during which the survey is conducted.

Swainson's Hawk

Prior to any ground disturbance related to covered activities that occurs during the nesting season (March 15–September 15), a qualified biologist will conduct a preconstruction survey no more than 1 month prior to construction to establish whether Swainson's hawk nests within 1,000 feet of the project site are occupied. If potentially occupied nests within 1,000 feet are off the project site, then their occupancy will be determined by observation from public roads or by observations of Swainson's hawk activity (e.g., foraging) near the project site. If nests are occupied, minimization measures and construction monitoring will be implemented as described below under construction monitoring and avoidance/minimization measures. Note that BART is seeking a variance from the 1,000-foot survey distance from the project site for a known Swainson's hawk nest outside of the project area. The rationale for this request is presented below under construction monitoring and avoidance/minimization measures.

San Joaquin Kit Fox

Prior to any ground disturbance related to covered activities, a USFWS/CDFG–approved biologist will conduct a preconstruction survey in areas identified in the planning surveys as supporting suitable breeding or denning habitat for San Joaquin kit fox. The surveys will establish the presence or absence of San Joaquin kit foxes and/or suitable dens and evaluate use by kit foxes in accordance with USFWS survey guidelines (U.S. Fish and Wildlife Service 1999). Preconstruction surveys will be conducted within 30 days of ground disturbance. On the parcel where the activity is proposed, the biologist will survey the proposed disturbance footprint and a 250-foot radius from the perimeter of the proposed footprint to identify San Joaquin kit foxes and/or suitable dens. Adjacent parcels under different land ownership will not be surveyed. The status of all dens will be determined and mapped. Written results of preconstruction surveys will be submitted to USFWS within 5 working days after survey completion and before the start of ground disturbance. Concurrence is not required prior to initiation of covered activities. If San Joaquin kit foxes and/or suitable dens are identified in the survey area, the measures described below will be implemented.

Construction Monitoring & Avoidance and Minimization Measures for Selected Covered Species

Table 5 identifies the species that will be assessed during the preconstruction surveys, along with a summary of the construction monitoring requirements and avoidance measures to be implemented in the event that preconstruction surveys described in Table 4 detect the covered species. These construction monitoring and avoidance requirements are described in detail in Section 6.4.3, Species-Level Measures, of the Final HCP/NCCP.

Construction Monitoring Plan Requirements in Section 6.3.3, Construction Monitoring, of the Final HCP/NCCP:

☒ Before implementing a covered activity, the applicant will develop and submit a construction-monitoring plan to the Implementing Entity[3] for approval.

TABLE 5
APPLICABLE CONSTRUCTION MONITORING REQUIREMENTS

Species Assessed by Preconstruction Surveys	Monitoring Action Required if Species Detected
☐ None	N/A
☒ San Joaquin kit fox (p. 6-38)	Establish exclusion zones (>50 ft) for potential dens. Establish exclusion zones (>100 ft) for known dens. Notify USFWS of occupied natal dens.
☒ Western burrowing owl (p. 6-40)	Establish buffer zones (250 ft) around nests. Establish buffer zones (160 ft) around burrows.
☐ Giant garter snake (p. 6-44)	Delineate 200-ft buffer around potential habitat. Provide field report on monitoring efforts. Stop construction activities if snake is encountered; allow snake to passively relocate. Remove temporary fill or debris from construction site. Mandatory training for construction personnel.
☐ Covered shrimp species (p. 6-47)	Establish buffer around outer edge of all hydric vegetation associated with habitat (50 feet of limit of immediate watershed supporting the wetland, whichever is larger). Mandatory training for construction personnel.
☒ Swainson's hawk (p. 6-42)	Establish 1,000-ft buffer around active nest and monitor compliance unless reduced per BART's variance request described below.
☐ Golden eagle (p. 6-39)	Establish 0.5-mile buffer around active nest and monitor compliance.

[3] The East Contra Costa County Habitat Conservancy must review and approve the plan prior to the commencement of all covered activities (i.e. construction).

Construction Monitoring & Avoidance and Minimization Measures as Required for Selected Covered Wildlife in Table 5

This section describes the construction monitoring and avoidance and minimization measures applicable to the species checked in Table 5. The construction monitoring & avoidance and minimization measures requirements are described in detail in Section 6.4.3, Species-Level Measures, of the HCP/NCCP.

Western Burrowing Owl

For any potential burrowing owl nest burrows that have been identified during the preconstruction surveys, BART will implement burrowing owl exclusion methods for those potential burrows in the project area prior to the burrowing owl nesting season. These methods may include:

- blocking the burrow entrances with one way doors to ensure no owls are present in those burrows,
- collapsing burrows that have been confirmed as unoccupied by burrowing owls, and/or
- planting new vegetation (fast growing grasses and forbs) entirely covering the burrow at a height of approximately 24 to 36 inches above the ground to discourage both ground squirrel and burrowing owl use of the burrow. This method must be completed well in advance of the nesting season to ensure the vegetation has time to mature to the desired height before the nesting season. Vegetation is to be retained until construction begins.

If burrowing owls are found during the breeding season (February 1–August 31), BART will avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young. Construction may occur during the breeding season if a qualified biologist monitors the nest and determines that the birds have not begun egg-laying and incubation or that the juveniles from the occupied burrows have fledged. During the non-breeding season (September 1–January 31), BART will avoid the owls and the burrows they are using, if possible. Avoidance will include the establishment of a buffer zone of 250 feet around each occupied burrow during the breeding season and 160 feet around burrows being used during the non-breeding season. The buffers will be delineated by highly visible, temporary construction fencing.

If occupied burrows for burrowing owls are not avoided, passive relocation will be implemented. Owls should be excluded from burrows within the160-foot buffer zone by installing one-way doors in burrow entrances. These doors should be in place for 48 hours prior to excavation. The project area should be monitored daily for 1 week to confirm that the owl has abandoned the burrow. Whenever possible, burrows should be excavated using hand tools and refilled to prevent reoccupation (California Department of Fish and Game

1995). Plastic tubing or a similar structure should be inserted in the tunnels during excavation to maintain an escape route for any owls inside the burrow.

Swainson's Hawk

Avoidance and Minimization and Construction Monitoring. During the nesting season (March 15–September 15), covered activities within 1,000 feet of occupied nests or nests under construction will be prohibited to prevent nest abandonment. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be used, the Conservancy will coordinate with CDFG/USFWS to determine the appropriate buffer size. If young fledge prior to September 15, covered activities can proceed normally. If the active nest site is shielded from view and noise from the project site by other development, topography, or other features, the project applicant can apply to the Conservancy for a waiver of this avoidance measures. Any waiver must also be approved by USFWS and CDFG. While the nest is occupied, activities outside the buffer can take place.

Swainson's Hawk Variance Request

As described above in the results of the species specific planning surveys, a known Swainson's hawk nest occurs outside the project site, approximately 800 feet northeast of the maintenance facility. The location of this nest is shown in Figure 5. Because the active nest site is shielded from view and noise from the project site by other development, topography, and other features, BART is applying to the Conservancy for a variance to this avoidance measure. In order to start construction in 2012, BART requests a variance from the Conservancy's Swainson's hawk 1,000-foot setback to a reduced setback of approximately 800 feet, which would be sufficient to allow for successful rearing and fledging of the Swainson's hawk young.

Construction of the project is not likely to result in the abandonment of the nest (assuming it is active in 2012) for the following reasons:

- Only the easternmost end of the project site is within 1,000 feet of the nest. Most of the project construction will occur outside of the 1000-foot buffer area.
- The nest tree is somewhat shielded from the project site by other trees occurring in clusters between the nest and the project site.
- Swainson's hawks nesting in this tree are likely to be acclimated to urban-related disturbances due to the presence of human activities associated with:
    - the SR 4/SR 160 interchange to the east and south within 1,600 feet;
    - Existing single family residential development to the north within 1,300 feet; and
    - Existing industrial land uses in the vicinity including an auto scrap yard to the southwest and a metals warehouse/recycling facility to the southeast within 700 feet.

This variance request requires consultation with USFWS and CDFG to determine if the smaller buffer area (approximately to 800 feet) can be used. While the nest is occupied, activities outside the buffer can take place. All active nest trees will be preserved on site, if feasible. Nest trees, including non-native trees, lost to covered activities will be mitigated as described below.

Monitoring of Active Swainson's Hawk Nest

The designated biological monitor will monitor all work that occurs within 1000 feet of an active Swainson's hawk nest, even if no apparent behavioral response to work activities is observed. The biological monitor will record behavior of the Swainson's hawk pairs during the work activities, and will compare the behaviors to the record of behaviors observed during the baseline monitoring. The monitor shall record and report weekly to the Conservancy on the status of the Swainson's hawk nest through the duration of project activities within the 1000 foot buffer area.

The biologist will conduct a pre-construction base-line monitoring to establish normal behavior. The baseline observations will include the types of human activities that are typically occurring around the nest, and the hawks' behavior of territorial response, alarm behaviors or apparent habituation. Typical perches for the member of the pair that is not attending the nest will be recorded. The duration that the birds spend away from the nest will be recorded. Feeding frequency and behavior will be recorded. The behavioral information will serve as a baseline for comparison with behavior observed during work activities, and is an important tool that will be used to determine abnormal behaviors that will be interpreted as a sign of disturbance.

During work activities the designated biologist will monitor the behavior of the Swainson's hawk to observe normal nesting behavior and ensure that the hawks do not direct territorial defense responses to the work activities, or show abnormal behaviors in comparison to baseline monitoring. The normal nesting behaviors and the degree of sensitivity to potential disturbance does vary over the course of the nesting cycle. Behaviors can vary from near-constant nest attendance during incubation, and prey deliveries by the male to the female, to a reduced nest attendance as the nestlings age, and delivery of prey directly to the young.

If the monitor observes abnormal nesting behavior that appears to result from project activities, work within 1000 feet of the nest site will be stopped within 15 minutes in order to avoid continued disturbance. If the work is halted by the biological monitor, the Conservancy, USFWS and the CDFG will be notified, and work will not resume at that location until written notification from the Conservancy (on behalf of Conservancy, CDFG and USFWS) is received by BART.

The Biological monitors will be approved by USFWS and CDFG. All potential monitors will be avian biologists who have Swainson's hawk specific nest monitoring experience.

Mitigation for Loss of Nest Trees

There is one non-riparian nest identified within the project site that may be used by a Swainson's hawk. The HCP/NCCP requires the loss of non-riparian Swainson's hawk nest trees will be mitigated by the project proponent by the following:

- If feasible on-site, planting 15 saplings for every tree lost with the objective of having at least 5 mature trees established for every tree lost according to the requirements listed below.

AND either

1. Pay the Implementing Entity an additional fee to purchase, plant, maintain, and monitor 15 saplings on the HCP/NCCP Preserve System for every tree lost according to the requirements listed below, OR

2. The project proponent will plant, maintain, and monitor 15 saplings for every tree lost at a site to be approved by the Implementing Entity (e.g., within an HCP/NCCP Preserve or existing open space linked to HCP/NCCP preserves), according to the requirements for all planting options.

Conservancy staff agreed with BART's determination, that on-site mitigation is not feasible for the following reasons:

- The project site will be an active transit maintenance facility that includes 24-hour human activity, as well as large, moving transit vehicles and a variety of machinery that operates both day and night.
- The area around the maintenance facility is projected by the local jurisdiction to have considerable additional commercial and residential development, converting the existing environment to a much more urban environment.
- A high volume of patron traffic entering and exiting the station area and parking lot, as well as extensive lighting that would be disturbing for nesting birds.
- The local transportation system is expected to experience significant additional development and construction, including construction of a new off-ramp from SR-4 that will increase the traffic, noise, and air contaminants.
- The project site is located between an active railroad and a heavily utilized state highway which, together with the eBART station construction and operations described above make the location unfavorable for a long term bird nesting site.

For all the reasons above, the area will have a negative impact on nesting birds and become less conducive to successful raptor breeding over time.

BART intends to mitigate for the loss of the one nest tree on the project site by paying the Conservancy a fee of $30,000 to purchase, plant, maintain, and monitor the required 30 saplings at an off-site location. The Conservancy intends to work with the City of Oakley to perform the required plantings as a part of the proposed Creekside Park Restoration Project, which is intended to be added to the HCP/NCCP Preserve System. The Creekside Park

Project is proposed for construction in the summer of 2012. It involves setting back the banks of Marsh Creek and planting native vegetation on the banks and restored flood terrace, including more than 150 native trees. Trees to be planted include a number of species suitable for nesting by Swainson's hawk, including cottonwood, sycamore and valley oak. Conservancy and BART staff have discussed this proposal with staff from the City of Oakley and Oakley staff is amenable to the proposal and the price.

San Joaquin Kit Fox

Avoidance and Minimization Requirements. The following avoidance and minimization measures will be implemented:

- If a San Joaquin kit fox den is discovered in the proposed development footprint, the den will be monitored for 3 days by a USFWS/CDFG–approved biologist using a tracking medium or an infrared beam camera to determine if the den is currently being used.
- Unoccupied dens should be destroyed immediately to prevent subsequent use.
- If a natal or pupping den is found, USFWS and CDFG will be notified immediately. The den will not be destroyed until the pups and adults have vacated and then only after further consultation with USFWS and CDFG.
- If kit fox activity is observed at the den during the initial monitoring period, the den will be monitored for an additional 5 consecutive days from the time of the first observation to allow any resident animals to move to another den while den use is actively discouraged. For dens other than natal or pupping dens, use of the den can be discouraged by partially plugging the entrance with soil such that any resident animal can easily escape. Once the den is determined to be unoccupied it may be excavated under the direction of the biologist. Alternatively, if the animal is still present after 5 or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant (i.e., during the animal's normal foraging activities).

Construction Monitoring. If dens are identified in the survey area outside the proposed disturbance footprint, exclusion zones around each den entrance or cluster of entrances will be demarcated. The configuration of exclusion zones should be circular, with a radius measured outward from the den entrance(s). No covered activities will occur within the exclusion zones. Exclusion zone radii for potential dens will be at least 50 feet and will be demarcated with four to five flagged stakes. Exclusion zone radii for known dens will be at least 100 feet and will be demarcated with staking and flagging that encircles each den or cluster of dens but does not prevent access to the den by kit fox.

IV. Landscape and Natural Community-Level Avoidance and Minimization Measures

This section describes relevant avoidance and minimization measures required to address the conservation measures listed below.

For All Projects

HCP/NCCP Conservation Measure 1.10. Maintain Hydrologic Conditions and Minimize Erosion

An adopted mitigation measure for the eBART Project requires that BART ensure that its contractor obtains a National Pollutant Discharge Elimination System (NPDES) permit and prepares a Stormwater Pollution Prevention Plan (SWPPP) prior to construction. The SWPPP shall identify specific erosion and sediment best management practices to be implemented during construction to control and minimize erosion impacts. Such practices will include placement of silt fencing and/or similar measures to prevent sediment from entering sensitive areas such as the drainage east of the maintenance facility. In addition, pursuant to another adopted mitigation measure, BART shall ensure that its contractor complies with the State General Permit for Discharges of Storm Water Associated with Industrial Activities, State Water Resources Control Board (SWRCB) Order No. 97-03-DWQ (or its successor) and/or Statewide Phase II MS4 NPDES General Permit, SWRCB Order No. 2003-005-DWQ) to detain and treat the additional surface water runoff generated by the project. The permits require the completion and implementation of stormwater management plans, which will contain design measures to minimize surface runoff and amounts of pollutants that enter the storm drain system and/or the natural landscape. As a result, no impacts to wetlands are anticipated for the portion of the project within the Hillcrest Avenue Station parking lot area of disturbance or the maintenance facility area of disturbance. Wetland areas that have been identified will be avoided by the project.

HCP/NCCP Conservation Measure 1.11. Avoid Direct Impacts on Extremely Rare Plants, Fully Protected Wildlife Species, or Covered Migratory Birds

Extremely Rare Plants

Planning surveys conducted on April 14, 2011 did not reveal the presence of rare plants or HCP/NCCP covered plants on the project site.

Fully Protected Wildlife Species

The project site supports suitable nesting habitat for Western burrowing owl. If burrowing owls are detected nesting on the site, protective measures will be implemented to ensure that direct impacts are avoided. The nest site will be monitored and the required nest buffer zones will be established. It is anticipated that the site does not support active San Joaquin kit fox. There is a Swainson's hawk nest approximately 800 feet from the project site and is buffered by a commercial car demolition site, other industrial uses, the railroad tracks, and trees; therefore, it is anticipated project activities will not directly impact the nest site. However, it is recommended that the nest site be monitored if construction activities start during the breeding season from March 15 to September 15. Although two other nest structures were observed during the October 10, 2011 survey of the site (one within the

project site and one on adjacent Caltrans property), the trees on site will be removed prior to the nesting season, thereby avoiding impacts on nesting migratory birds.

Migratory Bird Treaty Act Covered Birds Preconstruction Survey Requirement

Prior to any ground disturbance related to covered activities, a USFWS/CDFG-approved biologist will conduct an MBTA nesting bird preconstruction survey within the Hillcrest Avenue Station parking lot facility and the maintenance facility. The surveys will establish the presence or absence of nesting migratory bird covered species and/or habitat features, and evaluate the use by migratory bird covered species. This survey can be carried out concurrently with the burrowing owl preconstruction survey.

On the parcels where the activity is proposed, the biologist will survey the proposed ground disturbance footprint and up to a 250-foot radius from the perimeter of the project site, to identify active bird nests. If potential nest sites are outside the site perimeter but within 250 feet, then their occupancy shall be determined by observation from public roads or by observations of MBTA covered bird activity near the project site.

Migratory Bird Treaty Act Covered Species

In the event that the preconstruction surveys detect the presence of MBTA protected species, BART's construction contractor will avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young. Avoidance will include establishment of a non disturbance buffer zone (250 feet around nests). If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, and limited activities) indicate that a smaller buffer could be used, the implementing entity will coordinate with USFWS/CDFG to determine the appropriate buffer size.

For Projects on or adjacent to Streams or Wetlands

HCP/NCCP Conservation Measure 1.7. Establish Stream Setbacks

A swale area that supports freshwater marsh habitat is east of the project site. The project has been designed to avoid this wetland feature, will maintain a stream buffer zone of approximately 80 feet, and implement the appropriate Best Management Practices as required by the RWQCB and NPDES permits to ensure that no sediments or pollutants enter the wetland area (see also earlier response to compliance with HCP/NCCP Conservation Measure 1.10). The most suitable BMP would be silt fencing along with certified weed free hay bales or wattles.

HCP/NCCP Conservation Measure 2.12. Wetland, Pond, and Stream Avoidance and Minimization

A swale area that supports freshwater marsh habitat lies east of the project site. The project has been designed to avoid this wetland feature, will maintain a stream buffer zone of about 80 feet, and implement the appropriate Best Management Practices as required by the project's NPDES and RWQCB permits to ensure that no sediments or pollutants enter the

wetland area (see also earlier response to compliance with HCP/NCCP Conservation Measure 1.10). The most suitable BMP would be silt fencing along with certified weed free hay bales or wattles. Avoidance and minimization measures for the drainage will be documented.

For Projects adjacent to Protected Natural Lands (existing and projected)

HCP/NCCP Conservation Measure 1.6. Minimize Development Footprint Adjacent to Open Space

The project site is located within the City of Antioch and within the Antioch Urban Growth Boundary. No open space areas are designated near the project site. The site falls within an area described in the City of Antioch General Plan land use map as "Transit Oriented Development" and a "Focus Area." Therefore, HCP/NCCP Conservation Measure 1.6 does not apply to the eBART Phase II Project.

HCP/NCCP Conservation Measure 1.8. Establish Fuel Management Buffer to Protect Preserves and Property

The project site is not adjacent to HCP/NCCP preserves, likely HCP/NCCP acquisition sites, or existing public space; therefore, HCP/NCCP Conservation Measure 1.8 does not apply to the eBART Phase II Project. Nevertheless, it is noted that, pursuant to an adopted mitigation measure, BART shall ensure that its contractor prepare a SWPPP that includes a Spill Prevention Plan outlining measures to control hazardous materials storage.

HCP/NCCP Conservation Measure 1.9. Incorporate Urban-Wildland Interface Design Elements

The project site is not adjacent to HCP/NCCP preserves, likely HCP/NCCP acquisition sites, or existing public space; therefore, HCP/NCCP Conservation Measure 1.9 does not apply to the eBART Phase II Project.

For Rural Infrastructure Projects

HCP/NCCP Conservation Measure 1.12. Implement Best Management Practices for Rural Road Maintenance

BART is considered a Participating Special Entity of the HCP/NCCP, and the eBART project is identified as an infrastructure transportation-related projects that is covered by the HCP/NCCP (pages 22-23 of the HCP/NCCP).

HCP/NCCP Conservation Measure 1.13. Implement Best Management Practices for Flood Control Facility Maintenance

While the eBART project is not a flood control maintenance facility, it does incorporate a number of design features and mitigation measures to avoid flood hazards and effects. The eBART Phase II Project includes storm water detention basins/bio-retention basins that will collect runoff from the roadways, parking lots, and maintenance areas. The detention/bio-retention basin for the maintenance facility will be sited on the west side of the facility (see Figure 3A). In addition, as described in the discussion for compliance with HCP/NCCP Conservation Measure 1.10, an adopted mitigation measure for the eBART project requires that BART ensure that its contractor obtains an NPDES permit and prepares a SWPPP prior to construction. The SWPPP shall identify specific erosion and sediment best management practices to be implemented during construction to control and minimize erosion impacts. In addition, pursuant to another adopted mitigation measure, BART shall ensure that its contractor complies with the State General Permit for Discharges of Storm Water Associated with Industrial Activities, State Water Resources Control Board (SWRCB) Order No. 97-03-DWQ (or its successor) and/or Statewide Phase II MS4 NPDES General Permit, SWRCB Order No. 2003-005-DWQ) to detain and treat the additional surface water runoff generated by the project. The permits require the completion and implementation of stormwater management plans, which will contain design measures to minimize surface runoff and amounts of pollutants that enter the storm drain system and/or the natural landscape.

HCP/NCCP Conservation Measure 1.14. Design Requirements for Covered Roads outside the Urban Development Area

The eBART Phase II Project area lies within the Urban Development Area. Accordingly, this conservation measures does not apply to the project.

V. Mitigation Measures

Based on the current Fee Calculator Worksheet for Zone IV Impacts for permanent and temporary disturbance, the fee total is $608,670.35. The fee covers permanent impacts to 37.91 acres of ruderal and grassland land cover types, and temporary impacts to an additional 2.22 acres of grassland. BART would pay this development fee ($608,670.35), plus a 50% contribution to recovery of endangered species ($303,151.67, or half of the development fee for permanent disturbance) less the credit from the eBART Phase I Project ($7,511.77). Additionally BART will pay $30,000 for mitigation of the loss of a Swainson's hawk nest tree. Total fees owed by BART are $934,310.25. All fees shall be paid within 30 days of receiving a total fee amount and appropriate invoice from the East Contra Costa County Habitat Conservancy. Details on this fee calculation are provided in Exhibit 1 and Exhibit 2 on the following pages.

Exhibit 1: HCP/NCCP FEE CALCULATOR WORKSHEET

PROJECT APPLICANT INFO:

Project Applicant: San Francisco Bay Area Rapid Transit District

Project Name: eBART Phase II Project

APN (s): Numerous

Date: January 5, 2012 Jurisdiction: Participating Special Entity

DEVELOPMENT FEE (see appropriate ordinance or HCP/NCCP Figure 9-1 to determine Fee Zone)

	Acreage of land to be permanently disturbed (from Table 2B)[1]		Full Development Fee		Fee per Acre (subject to change on 3/15/12[2])		
Fee Zone 1		x		x	$10,662.15	=	$0.00
Fee Zone 2		x		x	$21,324.30	=	$0.00
Fee Zone 3		x		x	$5,331.52	=	$0.00
Fee Zone 4[3]	37.91	x		x	$15,993.23	=	$606,303.35
					Development Fee Total		**$606,303.35**

****WETLAND MITIGATION FEE**	Acreage of wetland		Fee per Acre (subject to change on 3/15/12[2])		
Riparian woodland / scrub		x	$64,570.30	=	$0.00
Perennial Wetland		x	$88,359.36	=	$0.00
Seasonal Wetland		x	$191,445.28	=	$0.00
Alkali Wetland		x	$181,249.97	=	$0.00
Ponds		x	$96,289.05	=	$0.00
Aquatic (open water)		x	$48,710.93	=	$0.00
Slough / Channel		x	$109,882.80	=	$0.00
	Linear Feet				
Streams					
Streams 25 Feet wide or less (Fee is per Linear Foot)		x	$526.42	=	$0.00
Streams greater than 25 feet wide (Fee is per Linear Foot)		x	$792.97	=	$0.00
			Wetland Mitigation Fee Total		**$0.00**

FEE REDUCTION

Development Fee reduction (authorized by Implementing Entity) for land in lieu of fee	
Development Fee reduction (up to 33%, but must be approved by Conservancy) for permanent assessments	
Wetland Mitigation Fee reduction (authorized by Implementing Entity) for wetland restoration/creation performed by applicant	
Reduction Total	**$0.00**

CALCULATE FINAL FEE

Development Fee for Permanent Disturbance Total		$606,303.35
Development Fee for Temporary Disturbance Total*		$2,367.00
Wetland Mitigation Fee Total	+	$0.00
Fee Subtotal		$608,670.35
Contribution to Recovery	+	$303,151.67
Swainson's Hawk Tree Mitigation	+	$30,000.00
Credit from eBART Phase I Project	-	7511.77
TOTAL AMOUNT TO BE PAID:		**$934,310.25**

Notes:

1 City/County Planning Staff will consult the land cover map in the Final HCP/NCCP and will reduce the acreage subject to the Development Fee by the acreage of the subject property that was identified in the Final HCP/NCCP as urban, turf, landfill or aqueduct land cover.

2 The Conservancy is currently conducting the periodic fee audit required by the HCP/NCCP which could result in further adjustment to some or all fees in 2011.

3 "Fee Zone 4" is not shown on Figure 9.1 of the HCP/NCCP but refers to the fee applicable to those few covered acitivities located in northeastern Antioch (see page 9-21 of the HC

*Temporary Impact Fee inserted to show total fees owed. See Exhibit 2 for calculations..

Template date: March 15, 2011

Exhibit 2: TEMPORARY IMPACT FEE CALCULATOR WORKSHEET

PROJECT APPLICANT INFO:

Project Applicant: San Francisco Bay Area Rapid Tranist District

Project Name: eBART Phase II Project

APN (s): Numerous

Date: January 5, 2011 Jurisdiction: Participating Special Entity

TEMPORARY IMPACT FEE (see appropriate ordinance or HCP/NCCP Figure 9-1 to determine Fee Zone)

	Acreage of land to be temporarily disturbed (from Table 1)[1]		Years of Disturbance (2 years is the minimum for ground-disturbing)			Fee per Acre (subject to change on 3/15/12[2])		
Fee Zone 1		x		/30	x	$10,662.15	=	$0.00
Fee Zone 2		x		/30	x	$21,324.30	=	$0.00
Fee Zone 3		x		/30	x	$5,331.52	=	$0.00
Fee Zone 4[3]	2.22	x	2	/30	x	$15,993.23	=	$2,367.00
						Temporary Impact Fee Total		**$2,367.00**

****TEMPORARY WETLAND MITIGATION FEE**	Acreage of wetland	Yrs. Of Disturbance (minimum shown)		Fee per Acre (subject to change on 3/15/12[2])	
Riparian woodland / scrub		5.00	x	$64,570.30	= $ -
Perennial Wetland		2.00	x	$88,359.36	= $ -
Seasonal Wetland		2.00	x	$191,445.28	= $ -
Alkali Wetland		2.00	x	$181,249.97	= $ -
Ponds		2.00	x	$96,289.05	= $ -
Aquatic (open water)		2.00	x	$48,710.93	= $ -
Slough / Channel		2.00	x	$109,882.80	= $ -

Streams	Linear Feet				
Streams 25 Feet wide or less (Fee is per Linear Foot)	0.00	2.00	x	$526.42	= $0.00
Streams greater than 25 feet wide (Fee is per Linear Foot)		2.00	x	$792.97	= $0.00
				Wetland Mitigation Fee Total	**$ -**

FEE REDUCTION

Development Fee reduction (authorized by Implementing Entity) for land in lieu of fee	
Development Fee reduction (up to 33%, but must be approved by Conservancy) for permanent assessments	
Wetland Mitigation Fee reduction (authorized by Implementing Entity) for wetland restoration/creation performed by applicant	
Reduction Total	**$0.00**

CALCULATE FINAL TEMP IMPACT FEE

Development Fee Total	$2,367.00
Wetland Mitigation Fee Total +	$0.00
Fee Subtotal	$2,367.00
TOTAL TEMPORARY IMPACT FEES TO BE PAID	**$2,367.00**

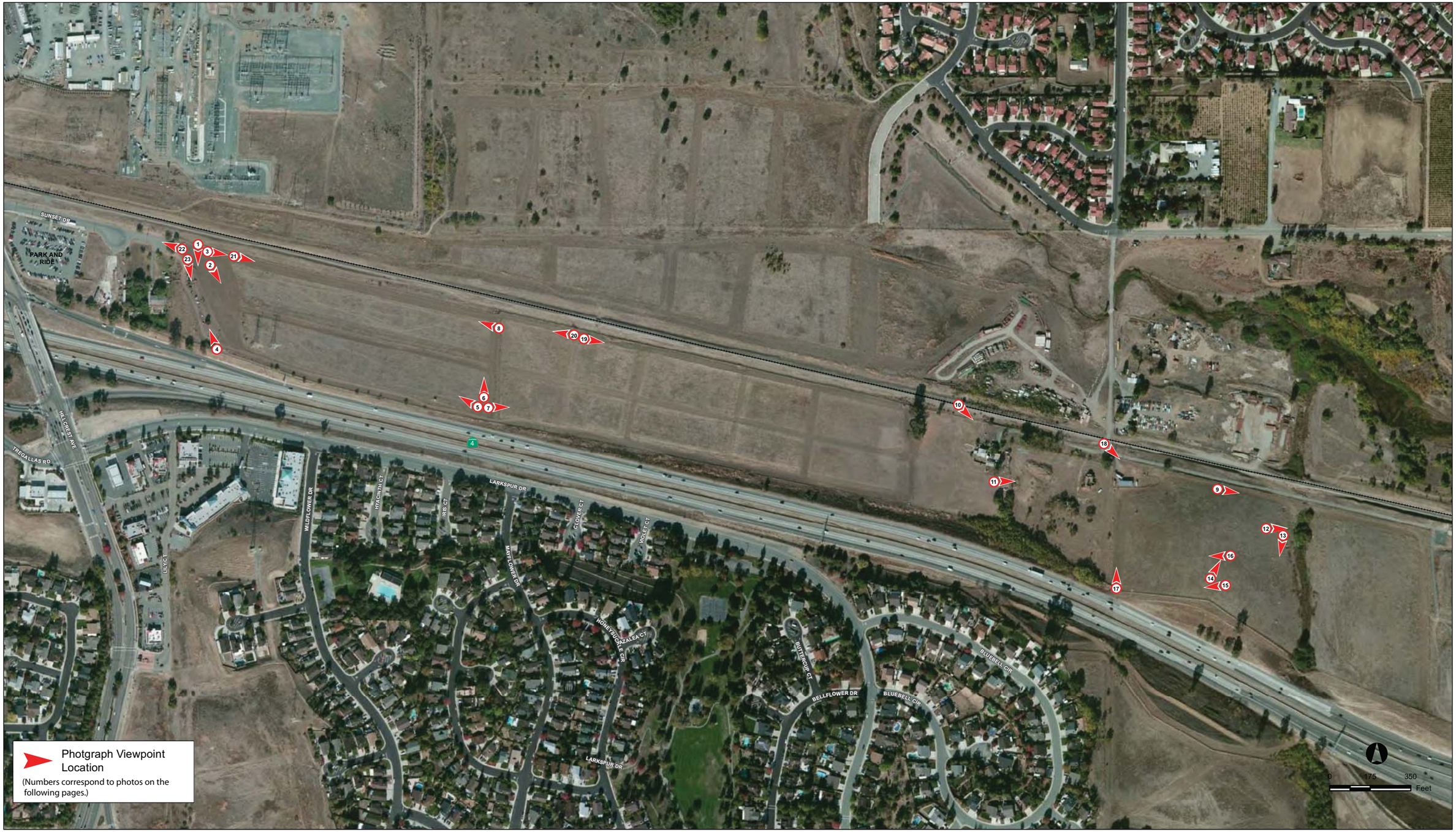
Notes:

1 City/County Planning Staff will consult the land cover map in the Final HCP/NCCP and will reduce the acreage subject to the Development Fee by the acreage of the subject property that was identified in the Final HCP/NCCP as urban, turf, landfill or aqueduct land cover.

2 The Conservancy is currently conducting the periodic fee audit required by the HCP/NCCP which could result in further adjustment to some or all fees in 2011.

3 "Fee Zone 4" is not shown on Figure 9.1 of the HCP/NCCP but refers to the fee applicable to those few covered acitivities located in northeastern Antioch (see page 9-21 of the HCP).

Template date: March 15, 2011



Source: PGH Wong; Atkins, 2011.

PHOTO VIEWPOINTS
FIGURE 4B

ATKINS

eBART Conservancy Application
100013216

1. Northwest corner of project site, looking south towards SR 4.

2. Northwest corner of project site, looking east towards SR 4.

Source: Atkins, 2011.

PROJECT SITE PHOTOGRAPHS
FIGURE 4B (Continued)

3. Northwest corner of project site, looking east along northern boundary of site.

4. Southwest corner of project site, looking north towards Sunset Drive.

Source: Atkins, 2011.

PROJECT SITE PHOTOGRAPHS
FIGURE 4B (Continued)

5. Middle portion of project site, southern border, looking west.

6. Middle portion of project site, southern border, looking due north.

Source: Atkins, 2011.

PROJECT SITE PHOTOGRAPHS
FIGURE 4B (Continued)

7. Middle portion of project site, southern border, looking east towards knoll.

8. Middle portion of project site, northern border, looking west along proposed access road.

Source: Atkins, 2011.

PROJECT SITE PHOTOGRAPHS
FIGURE 4B (Continued)

9. Eastern portion of project site, northern border, looking east towards western side of knoll.

10. Eastern portion of project site, single family residence.

Source: Atkins, 2011.

PROJECT SITE PHOTOGRAPHS
FIGURE 4B (Continued)

11. Eastern portion of project site, horse and cattle corral at base of western side of knoll.

Typical active ground squirrel burrow on knoll.

Source: Atkins, 2011.

PROJECT SITE PHOTOGRAPHS
FIGURE 4B (Continued)

12. Eastern portion of project site, east side of knoll, looking east towards freshwater marsh habitat.

13. Eastern portion of project site, looking south up the eastern side of knoll.

Source: Atkins, 2011.

PROJECT SITE PHOTOGRAPHS
FIGURE 4B (Continued)

14. Eastern portion of project site, top of knoll, looking northeast towards Antioch Strait Bridge.

15. Eastern portion of project site, top of knoll, looking west.

Source: Atkins, 2011.

PROJECT SITE PHOTOGRAPHS
FIGURE 4B (Continued)

16. Eastern portion of project site, top of knoll, looking west, overlooking project site.

17. Eastern portion of project site, west side of knoll, looking north up fire break.

Source: Atkins, 2011.

PROJECT SITE PHOTOGRAPHS
FIGURE 4B (Continued)

18. Eastern portion of project site, looking at north side of knoll.

Typical active ground squirrel burrow along UPRR tracks, along northern border of site.

Source: Atkins, 2011.

PROJECT SITE PHOTOGRAPHS
FIGURE 4B (Continued)

19. Middle portion of project site, northern border, looking east.

20. Middle portion of project site, northern border, looking west.

Source: Atkins, 2011.

PROJECT SITE PHOTOGRAPHS
FIGURE 4B (Continued)

21. Northwest corner of project site, looking east towards knoll.

22. Northwest corner of project site, looking west.

Source: Atkins, 2011.

PROJECT SITE PHOTOGRAPHS
FIGURE 4B (Continued)

23. Northwest corner of project site, looking south.

Source: Atkins, 2011.

PROJECT SITE PHOTOGRAPHS
FIGURE 4B (Continued)

Appendix A

Rare Plant Survey Letter Report

ATKINS

Atkins North America, Inc.
625 The City Drive South, Suite 200
Orange, California 92868-4946
Telephone: +1.714.750.7275
Fax: +1.714.750.2501
www.atkinsglobal.com/northamerica

April 20, 2011

Ms. Ellen Smith
eBART Project Manager
BART Planning Department
300 Lakeside Drive, 16th Floor
Oakland, CA 94612

SUBJECT: 2011 Special-Status Plant Survey Report; eBART (Phase II update)

Dear Ms. Smith:

In the spring and summer of 2006, spring 2008, and spring 2011 Atkins (formally PBS&J) completed focused surveys for special-status (i.e., threatened or endangered) plants along the 9.2-mile eBART Corridor in eastern Contra Costa County, California. This area also included the eBART Phase II area (Study Area). No special-status plants were identified during the surveys conducted within the Study Area. Descriptions of plant communities outside of the Phase II project area are excluded from this report. Below is a description of survey methods, the Study Area's plant communities, and results.

1. SURVEY METHODOLOGY

Prior to conducting the 2006 and 2008 surveys of the Study Area, Atkins searched the California Department of Fish and Game's (CDFG) Natural Diversity Database (CNDDB) and the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* for records of special-status plant species within the vicinity of the Study Area (Appendix C and D).[1,2] In conducting the queries, 7.5 minute USGS quadrangles that either encompass or surround the project corridor were included. Specifically, searches were performed for the Honker Bay, Antioch North, Jersey Island, Antioch South, Brentwood, Woodward Island, and Byron Hot Springs 7.5 minute USGS topographic quadrangles (quads). Although the project corridor is not physically located in each of these quads, species occurring in these quads could move into quads where the project corridor is located. From these sources, Atkins compiled a list of 57 plant species that occur in the region around the eBART Corridor. Of these 57 plants, six are listed as threatened or endangered by the state and/or federal government, three are listed as rare by the state, one species is presumed extinct (CNPS List 1A), and 45 species are CNPS List 1B plants. List 1B is for

1 California Department of Fish and Game, 2005-2008. California Natural Diversity Database. Available at http://www.dfg.ca.gov/whdab/html/cnddb.html
2 CNPS Electronic Inventory available at http://www.cnps.org/inventory

those species that CNPS considers threatened or endangered in California and elsewhere. There are 11 species that are CNPS List 2 (plants that are rare, threatened, or endangered in California, but more common elsewhere). All special-status plants considered for this analysis are listed in Appendix F Special Status Species Table.

Special-status plant surveys were conducted by Atkins botanist Christopher Bronny on May 11, May 12, May 15, June 8, June 12, June 19, and August 10, 2006. Additional surveys were conducted by botanist Julia King and wildlife biologist Carlos Alvarado on April 11, 2008; Julia King conducted a follow up visit on May 21, 2008. On April 14, 2011 a rare plant survey of the Study Area was conducted by Atkins biologists Ron Walker and Sam Bacchini. The Study Area included a buffer, approximately 200 feet wide centered on the eBART Phase II area; areas identified for the Hillcrest parking lot area and the maintenance facilities complex. The survey area did not extend into the SR 4 right-of-way or private property to which the surveyors did not have access. The surveys followed CDFG[3] and CNPS[4] published survey guidelines. These guidelines state that special-status surveys should be conducted at the proper time of year when special-status and locally significant plants are both evident and identifiable. These guidelines also state that the surveys be floristic in nature with every plant observed identified to species, subspecies, or variety as necessary to determine their rarity status. Finally, surveys must be conducted in a manner that is consistent with conservation ethics and accepted plant collection and documentation techniques. Following these guidelines, surveys are conducted during the months when special-status plant species from the region are known to be evident and flowering. Representative areas of the Study Area were examined by walking meandering transects through potential habitat; emphasis was placed on assessing degraded ruderal and pasture land, the majority of land type, that could support native vascular taxa in terms of their overall frequency, density, and distribution throughout the Study Area.

Nearly all species found within the surveyed portions of the Study Area were identified to species; all were identified to the level needed to determine whether they qualify as special-status plants. A list of all vascular plant taxa encountered within the project site was recorded in the field; plants that needed further evaluation were collected and keyed in the lab. Final determination for collected plants was made by keying specimens using standard references such as *The Jepson Manual,*[5] *Plants of the San Francisco Bay Region,*[6] and *Annotated Checklist of the East Bay Flora.*[7]

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3 Electronic document; Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities; http://www.dfg.ca.gov/whdab/pdfs/guideplt.pdf

4 CNPS Botanical Survey Guidelines; http://www.cnps.org/programs/Rare_Plant/inventory/guidelines.htm

5 Hickman, J. (ed.). 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley.

6 Beidleman, L.H. and Kozloff, E.N. 2003. Plants of the San Francisco Bay Region: Mendocino to Monterey. University of California Press, Berkeley.

7 Ertter, B. 1997. Annotated Checklist of the East Bay Flora. Special Publication #3 of the California Native Plant Society East Chapter in Association with the University and Jepson Herbarium.

2. PLANT COMMUNITIES

The Study Area is located along the extreme northwestern edge of the San Joaquin Valley subdivision of the Great Central Valley Floristic Province[8] and supports two varieties of upland vegetation community types: ruderal habitat and pasture habitat. The eBART Phase II area is located south of Suisun Bay near the confluence of the lower Sacramento and San Joaquin Delta. Before Euro-American settlement of the region, most of area was likely a mosaic of perennial grasslands and freshwater and brackish marshes, intergrading somewhat with chaparral and woodland habitats associated with the foothills of the Black Hills range around Mount Diablo.

While all potential habitats were assessed for the presence of special-status plant species, surveys were concentrated within degraded ruderal habitat and pasture habitat; these community types were assessed as having the highest likelihood of special-status species occurrences within the eBART Phase II area. They also comprise the majority of habitat within the Study Area.

During the 2011 special-status plant survey, a total of 48 vascular plant species were identified in the Study Area (Appendix G). The overall number and percent cover of native California species found within the Study Area is low. Of the 48 plant species identified, 13 are native species (27%). The majority of the plant species present are naturalized and introduced to California from other countries. Below is a description of the Study Area's plant communities surveyed for special-status plants in 2011.

Upland Communities - Ruderal and Pasture Habitat

Ruderal and pasture habitats often contain a high percentage of introduced, non-native annual and biennial grasses and broad-leaved plants (forbs) that undergo frequent disturbance regimes (e.g., mowing, spraying, grading, disking). Native species are often infrequent within this habitat type due to their inability to compete with the more aggressive, short-lived, annual and biennial species. These communities are most frequently encountered in small urban open space parcels that have had agricultural crops or cattle and horse grazing. The more commonly encountered non-native plant species included wild oat (*Avena fatua*), rip-gut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), hare barley (*Hordeum murinum* ssp. *leporinum*), Italian ryegrass (*Lolium multiflorum*), wild radish (*Raphanus sativus*), prickly sow-thistle (*Sonchus asper*), Italian thistle (*Carduus pycnocephalus*), black mustard (*Brassica nigra*), yellow star-thistle (*Centaurea solstitialis*), California bur-clover (*Medicago polymorpha*), red-stem filaree (*Erodium cicutarium*), prickly lettuce (*Lactuca serriola*), hairy vetch (*Vicia villosa*), milk thistle (*Silybum marianum*), and field bindweed (*Convolvulus arvensis*). A few of the native vascular plant species found in common association with this habitat type were fiddleneck (*Amsinckia menziesii* var. *intermedia*), annual fireweed (*Epilobium brachycarpum*), Purple owl's clover (*Castilleja exserta),* and Miners lettuce (*Claytonia perfoliata*). Scattered tree and shrub species, found primarily within urbanized landscapes along

8 Hickman, J. (ed.). 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley.

fence lines or residences included flowering almond (*Prunus dulcis*), blackwood acacia (*Acacia melanoxylon*), eucalyptus (*Eucalyptus* spp.), and coyote brush (*Baccharis pilularis*).

3. SURVEY RESULTS

All plants observed on the Project Site during the 2011 survey were recorded (see Appendix G). No special-status plant species were identified during these surveys. In addition, the rare plant surveys that were conducted in 2006 and 2008 did not locate any special-status plant species.

Because of extensive historic and continued disturbances to the existing habitat types from agricultural practices, horse and cattle grazing, and urban development, future establishment of additional special-status plant species within the eBART Phase II Study Area seems unlikely. Consequently, no impacts to special-status plants are expected from development of the eBART Phase II project.

If you have any questions regarding the special-status plant surveys or survey report, please do not hesitate to contact me at (916) 325-4800.

Sincerely,

Sam Bacchini
Senior Scientist

Appendix B

CNDDB Species List

California Department of Fish and Game
Natural Diversity Database
eBART Phase 2
CNDDB Query for the Antioch South, Antioch North, Honker Bay, Jersey Island, Clayton, Brentwood, Diablo, Tassajara, and Byron Hot Springs USGS 7.5 minute quadrangle maps.

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Agelaius tricolor tricolored blackbird	ABPBXB0020			G2G3	S2	SC
2	Alkali Meadow	CTT45310CA			G3	S2.1	
3	Alkali Seep	CTT45320CA			G3	S2.1	
4	Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SC
5	Amsinckia grandiflora large-flowered fiddleneck	PDBOR01050	Endangered	Endangered	G1	S1	1B.1
6	Andrena blennospermatis Blennosperma vernal pool andrenid bee	IIHYM35030			G2	S2	
7	Anniella pulchra pulchra silvery legless lizard	ARACC01012			G3G4T3T4Q	S3	SC
8	Anomobryum julaceum slender silver moss	NBMUS80010			G4G5	S2	2.2
9	Anthicus antiochensis Antioch Dunes anthicid beetle	IICOL49020			G1	S1	
10	Antrozous pallidus pallid bat	AMACC10010			G5	S3	SC
11	Apodemia mormo langei Lange's metalmark butterfly	IILEPH7012	Endangered		G5T1	S1	
12	Aquila chrysaetos golden eagle	ABNKC22010			G5	S3	
13	Archoplites interruptus Sacramento perch	AFCQB07010			G3	S1	SC
14	Arctostaphylos auriculata Mt. Diablo manzanita	PDERI04040			G2	S2.2	1B.3
15	Arctostaphylos manzanita ssp. laevigata Contra Costa manzanita	PDERI04273			G5T2	S2	1B.2
16	Ardea herodias great blue heron	ABNGA04010			G5	S4	
17	Asio flammeus short-eared owl	ABNSB13040			G5	S3	SC
18	Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1			G2T2	S2	1B.2
19	Athene cunicularia burrowing owl	ABNSB10010			G4	S2	SC
20	Atriplex depressa brittlescale	PDCHE042L0			G2Q	S2.2	1B.2
21	Atriplex joaquiniana San Joaquin spearscale	PDCHE041F3			G2	S2	1B.2
22	Blepharizonia plumosa big tarplant	PDAST1C011			G1	S1	1B.1
23	Branchinecta longiantenna longhorn fairy shrimp	ICBRA03020	Endangered		G1	S1	

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened		G3	S2S3	
25	Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150			G2	S2	
26	Buteo regalis ferruginous hawk	ABNKC19120			G4	S3S4	
27	Buteo swainsoni Swainson's hawk	ABNKC19070		Threatened	G5	S2	
28	California macrophylla round-leaved filaree	PDGER01070			G2	S2	1B.1
29	Callophrys mossii bayensis San Bruno elfin butterfly	IILEPE2202	Endangered		G4T1	S1	
30	Calochortus pulchellus Mt. Diablo fairy-lantern	PMLIL0D160			G2	S2.1	1B.2
31	Campanula exigua chaparral harebell	PDCAM020A0			G2	S2.2	1B.2
32	Castilleja rubicundula ssp. rubicundula pink creamsacs	PDSCR0D482			G5T2	S2	1B.2
33	Centromadia parryi ssp. congdonii Congdon's tarplant	PDAST4R0P1			G4T2	S2	1B.2
34	Chloropyron molle ssp. molle soft bird's-beak	PDSCR0J0D2	Endangered	Rare	G2T1	S1.1	1B.2
35	Cicuta maculata var. bolanderi Bolander's water-hemlock	PDAPI0M051			G5T3T4	S2	2.1
36	Circus cyaneus northern harrier	ABNKC11010			G5	S3	SC
37	Cismontane Alkali Marsh	CTT52310CA			G1	S1.1	
38	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
39	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
40	Coelus gracilis San Joaquin dune beetle	IICOL4A020			G1	S1	
41	Cordylanthus nidularius Mt. Diablo bird's-beak	PDSCR0J0F0		Rare	G1	S1.2	1B.1
42	Cryptantha hooveri Hoover's cryptantha	PDBOR0A190			GH	SH	1A
43	Delphinium californicum ssp. interius Hospital Canyon larkspur	PDRAN0B0A2			G3T2?	S2?	1B.2
44	Delphinium recurvatum recurved larkspur	PDRAN0B1J0			G2	S2.2	1B.2
45	Didymodon norrisii Norris' beard moss	NBMUS2C0H0			G3G4	S3S4	2.2
46	Dipodomys heermanni berkeleyensis Berkeley kangaroo rat	AMAFD03061			G3G4T1	S1	
47	Downingia pusilla dwarf downingia	PDCAM060C0			G2	S2	2.2

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
48	Efferia antiochi Antioch efferian robberfly	IIDIP07010			G1G3	S1S3	
49	Elanus leucurus white-tailed kite	ABNKC06010			G5	S3	
50	Emys marmorata western pond turtle	ARAAD02030			G3G4	S3	SC
51	Eremophila alpestris actia California horned lark	ABPAT02011			G5T3Q	S3	
52	Eriastrum brandegeeae Brandegee's eriastrum	PDPLM03020			G3	S3	1B.2
53	Eriogonum nudum var. psychicola Antioch Dunes buckwheat	PDPGN0849Q			G5T1	S1	1B.1
54	Eriogonum nudum var. regirivum Kings River buckwheat	PDPGN0849F			G5T2	S2.2	1B.2
55	Eriogonum truncatum Mt. Diablo buckwheat	PDPGN085Z0			G1	S1.1	1B.1
56	Erysimum capitatum var. angustatum Contra Costa wallflower	PDBRA16052	Endangered	Endangered	G5T1	S1.1	1B.1
57	Eschscholzia rhombipetala diamond-petaled California poppy	PDPAP0A0D0			G1	S1.1	1B.1
58	Eucerceris ruficeps redheaded sphecid wasp	IIHYM18010			G1G3	S1S2	
59	Falco mexicanus prairie falcon	ABNKD06090			G5	S3	
60	Fritillaria agrestis stinkbells	PMLIL0V010			G3	S3.2	4.2
61	Fritillaria liliacea fragrant fritillary	PMLIL0V0C0			G2	S2.2	1B.2
62	Geothlypis trichas sinuosa saltmarsh common yellowthroat	ABPBX1201A			G5T2	S2	SC
63	Helianthella castanea Diablo helianthella	PDAST4M020			G2	S2	1B.2
64	Helminthoglypta nickliniana bridgesi Bridges' coast range shoulderband	IMGASC2362			G2T1	S1	
65	Hesperolinon breweri Brewer's western flax	PDLIN01030			G2	S2.2	1B.2
66	Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3			G4	S2.2	2.2
67	Hygrotus curvipes curved-foot hygrotus diving beetle	IICOL38030			G1	S1	
68	Hypomesus transpacificus Delta smelt	AFCHB01040	Threatened	Endangered	G1	S1	
69	Idiostatus middlekauffi Middlekauff's shieldback katydid	IIORT31010			G1G2	S1	
70	Isocoma arguta Carquinez goldenbush	PDAST57050			G1	S1.1	1B.1

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
71	Lanius ludovicianus loggerhead shrike	ABPBR01030			G4	S4	SC
72	Lasiurus blossevillii western red bat	AMACC05060			G5	S3?	SC
73	Lasiurus cinereus hoary bat	AMACC05030			G5	S4?	
74	Lasthenia conjugens Contra Costa goldfields	PDAST5L040	Endangered		G1	S1.1	1B.1
75	Laterallus jamaicensis coturniculus California black rail	ABNME03041		Threatened	G4T1	S1	
76	Lathyrus jepsonii var. jepsonii Delta tule pea	PDFAB250D2			G5T2	S2.2	1B.2
77	Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered		G3	S2S3	
78	Lilaeopsis masonii Mason's lilaeopsis	PDAPI19030		Rare	G2	S2	1B.1
79	Limosella subulata Delta mudwort	PDSCR10050			G4?Q	S2.1	2.1
80	Linderiella occidentalis California linderiella	ICBRA06010			G3	S2S3	
81	Lytta molesta molestan blister beetle	IICOL4C030			G2	S2	
82	Madia radiata showy golden madia	PDAST650E0			G2	S2.1	1B.1
83	Malacothamnus hallii Hall's bush-mallow	PDMAL0Q0F0			G2Q	S2	1B.2
84	Masticophis flagellum ruddocki San Joaquin whipsnake	ARADB21021			G5T2T3	S2?	SC
85	Masticophis lateralis euryxanthus Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	
86	Melospiza melodia maxillaris Suisun song sparrow	ABPBXA301K			G5T2	S2	SC
87	Metapogon hurdi Hurd's metapogon robberfly	IIDIP08010			G1G3	S1S3	
88	Monolopia gracilens woodland woollythreads	PDAST6G010			G2G3	S2S3	1B.2
89	Myrmosula pacifica Antioch multilid wasp	IIHYM15010			GH	SH	
90	Navarretia gowenii Lime Ridge navarretia	PDPLM0C120			G1	S1	1B.1
91	Neotoma fuscipes annectens San Francisco dusky-footed woodrat	AMAFF08082			G5T2T3	S2S3	SC
92	Northern Claypan Vernal Pool	CTT44120CA			G1	S1.1	
93	Oenothera deltoides ssp. howellii Antioch Dunes evening-primrose	PDONA0C0B4	Endangered	Endangered	G5T1	S1.1	1B.1

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
94	Perdita scitula antiochensis Antioch andrenid bee	IIHYM01031			G1T1	S1	
95	Perognathus inornatus inornatus San Joaquin pocket mouse	AMAFD01061			G4T2T3	S2S3	
96	Phacelia phacelioides Mt. Diablo phacelia	PDHYD0C3Q0			G1	S1.2	1B.2
97	Phalacrocorax auritus double-crested cormorant	ABNFD01020			G5	S3	
98	Philanthus nasalis Antioch specid wasp	IIHYM20010			G1	S1	
99	Phrynosoma blainvillii coast horned lizard	ARACF12100			G4G5	S3S4	SC
100	Potamogeton zosteriformis eel-grass pondweed	PMPOT03160			G5	S2.2?	2.2
101	Rallus longirostris obsoletus California clapper rail	ABNME05016	Endangered	Endangered	G5T1	S1	
102	Rana boylii foothill yellow-legged frog	AAABH01050			G3	S2S3	SC
103	Rana draytonii California red-legged frog	AAABH01022	Threatened		G4T2T3	S2S3	SC
104	Reithrodontomys raviventris salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	
105	Riparia riparia bank swallow	ABPAU08010		Threatened	G5	S2S3	
106	Sanicula saxatilis rock sanicle	PDAPI1Z0H0		Rare	G2	S2	1B.2
107	Scutellaria lateriflora side-flowering skullcap	PDLAM1U0Q0			G5	S1	2.2
108	Senecio aphanactis chaparral ragwort	PDAST8H060			G3?	S1.2	2.2
109	Serpentine Bunchgrass	CTT42130CA			G2	S2.2	
110	Sidalcea keckii Keck's checkerbloom	PDMAL110D0	Endangered		G1	S1.1	1B.1
111	Sphecodogastra antiochensis Antioch Dunes halcitid bee	IIHYM78010			G1	S1	
112	Stabilized Interior Dunes	CTT23100CA			G1	S1.1	
113	Sternula antillarum browni California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3	
114	Streptanthus albidus ssp. peramoenus most beautiful jewel-flower	PDBRA2G012			G2T2	S2.2	1B.2
115	Streptanthus hispidus Mt. Diablo jewel-flower	PDBRA2G0M0			G1	S1.2	1B.3
116	Stuckenia filiformis slender-leaved pondweed	PMPOT03090			G5	S1S2	2.2

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
117	Symphyotrichum lentum Suisun Marsh aster	PDASTE8470			G2	S2	1B.2
118	Taxidea taxus American badger	AMAJF04010			G5	S4	SC
119	Thamnophis gigas giant garter snake	ARADB36150	Threatened	Threatened	G2G3	S2S3	
120	Triquetrella californica coastal triquetrella	NBMUS7S010			G1	S1	1B.2
121	Tropidocarpum capparideum caper-fruited tropidocarpum	PDBRA2R010			G1	S1.1	1B.1
122	Valley Needlegrass Grassland	CTT42110CA			G3	S3.1	
123	Valley Sink Scrub	CTT36210CA			G1	S1.1	
124	Viburnum ellipticum oval-leaved viburnum	PDCPR07080			G5	S2.3	2.3
125	Vulpes macrotis mutica San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2T3	S2S3	

Appendix C

CNPS Species List

Inventory of Rare and Endangered Plants

v7-11apr 4-15-11

Status: search results - Wed, Apr. 20, 2011 13:10 c

{CNPS_LIST} =~ m/ 1A| 1B| 2/ and {QUADS_123} =~ m/464A|481C|481D|463B|463C|480C|464B|4 Search

Tip: `+DNT Jun Jul` returns Del Norte taxa with those blooming both months listed first.[all tips and help.] [search history]

Your Quad Selection: Antioch South (464A) 3712187, Honker Bay (481C) 3812118, Antioch North (481D) 3812117, Brentwood (463B) 3712186, Byron Hot Springs (463C) 3712176, Jersey Island (480C) 3812116, Clayton (464B) 3712188, Diablo (464C) 3712178, Tassajara (464D) 3712177

Hits 1 to 50 of 56

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Amsinckia grandiflora**	large-flowered fiddleneck	Boraginaceae	List 1B.1
		1	**Anomobryum julaceum**	slender silver moss	Bryaceae	List 2.2
		1	**Arctostaphylos auriculata**	Mt. Diablo manzanita	Ericaceae	List 1B.3
		1	**Arctostaphylos manzanita ssp. laevigata**	Contra Costa manzanita	Ericaceae	List 1B.2
		1	**Astragalus tener var. tener**	alkali milk-vetch	Fabaceae	List 1B.2
		1	**Atriplex cordulata**	heartscale	Chenopodiaceae	List 1B.2
		1	**Atriplex depressa**	brittlescale	Chenopodiaceae	List 1B.2
		1	**Atriplex joaquiniana**	San Joaquin spearscale	Chenopodiaceae	List 1B.2
		1	**Blepharizonia plumosa**	big tarplant	Asteraceae	List 1B.1
		1	**California macrophylla**	round-leaved filaree	Geraniaceae	List 1B.1
		1	**Calochortus pulchellus**	Mt. Diablo fairy-lantern	Liliaceae	List 1B.2
		1	**Campanula exigua**	chaparral harebell	Campanulaceae	List 1B.2
		1	**Castilleja rubicundula ssp. rubicundula**	pink creamsacs	Orobanchaceae	List 1B.2
		1	**Centromadia parryi ssp. congdonii**	Congdon's tarplant	Asteraceae	List 1B.2
		1	**Chloropyron molle ssp. molle**	soft bird's-beak	Orobanchaceae	List 1B.2
		1	**Cicuta maculata var. bolanderi**	Bolander's water-hemlock	Apiaceae	List 2.1
		1	**Cordylanthus nidularius**	Mt. Diablo bird's-beak	Orobanchaceae	List

						1B.1
		1	**Cryptantha hooveri**	Hoover's cryptantha	Boraginaceae	List 1A
		1	**Delphinium californicum ssp. interius**	Hospital Canyon larkspur	Ranunculaceae	List 1B.2
		1	**Delphinium recurvatum**	recurved larkspur	Ranunculaceae	List 1B.2
		1	**Didymodon norrisii**	Norris' beard moss	Pottiaceae	List 2.2
		1	**Dirca occidentalis**	western leatherwood	Thymelaeaceae	List 1B.2
		1	**Downingia pusilla**	dwarf downingia	Campanulaceae	List 2.2
		1	**Eriastrum brandegeeae**	Brandegee's eriastrum	Polemoniaceae	List 1B.2
		1	**Eriogonum nudum var. psychicola**	Antioch Dunes buckwheat	Polygonaceae	List 1B.1
		1	**Eriogonum nudum var. regirivum**	Kings River buckwheat	Polygonaceae	List 1B.2
		1	**Eriogonum truncatum**	Mt. Diablo buckwheat	Polygonaceae	List 1B.1
		1	**Erysimum capitatum var. angustatum**	Contra Costa wallflower	Brassicaceae	List 1B.1
		1	**Eschscholzia rhombipetala**	diamond-petaled California poppy	Papaveraceae	List 1B.1
		1	**Fritillaria liliacea**	fragrant fritillary	Liliaceae	List 1B.2
		1	**Helianthella castanea**	Diablo helianthella	Asteraceae	List 1B.2
		1	**Hesperolinon breweri**	Brewer's western flax	Linaceae	List 1B.2
		1	**Hibiscus lasiocarpos var. occidentalis**	woolly rose-mallow	Malvaceae	List 1B.2
		1	**Isocoma arguta**	Carquinez goldenbush	Asteraceae	List 1B.1
		1	**Lasthenia conjugens**	Contra Costa goldfields	Asteraceae	List 1B.1
		1	**Lathyrus jepsonii var. jepsonii**	Delta tule pea	Fabaceae	List 1B.2
		1	**Lilaeopsis masonii**	Mason's lilaeopsis	Apiaceae	List 1B.1
		1	**Limosella subulata**	Delta mudwort	Scrophulariaceae	List 2.1
		1	**Madia radiata**	showy golden madia	Asteraceae	List 1B.1
		1	**Malacothamnus hallii**	Hall's bush-mallow	Malvaceae	List 1B.2
		1	**Monolopia gracilens**	woodland woolythreads	Asteraceae	List 1B.2
		1	**Navarretia gowenii**	Lime Ridge navarretia	Polemoniaceae	List 1B.1
		1	**Neostapfia colusana**	Colusa grass	Poaceae	List 1B.1
		1	**Oenothera deltoides ssp. howellii**	Antioch Dunes evening-primrose	Onagraceae	List 1B.1
		1	**Phacelia phacelioides**	Mt. Diablo phacelia	Hydrophyllaceae	List 1B.2

		1	**Plagiobothrys hystriculus**	bearded popcorn-flower	Boraginaceae	List 1B.1
		1	**Potamogeton zosteriformis**	eel-grass pondweed	Potamogetonaceae	List 2.2
		1	**Sanicula saxatilis**	rock sanicle	Apiaceae	List 1B.2
		1	**Senecio aphanactis**	chaparral ragwort	Asteraceae	List 2.2
		1	**Streptanthus albidus ssp. peramoenus**	most beautiful jewel-flower	Brassicaceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

For more results click below:

Appendix D

USFWS Species List

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the ANTIOCH SOUTH (464A) U.S.G.S. 7 1/2 Minute Quad

Database last updated: April 29, 2010
Report Date: April 19, 2011

Listed Species

Invertebrates

Branchinecta conservatio

Conservancy fairy shrimp (E)

Branchinecta longiantenna

longhorn fairy shrimp (E)

Branchinecta lynchi

Critical habitat, vernal pool fairy shrimp (X)
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus

valley elderberry longhorn beetle (T)

Lepidurus packardi

vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus

Critical habitat, delta smelt (X)
delta smelt (T)

Oncorhynchus mykiss

Central Valley steelhead (T) (NMFS)

Oncorhynchus tshawytscha

Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense

California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)

Reptiles

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)

Thamnophis gigas
giant garter snake (T)

Birds

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Mammals

Vulpes macrotis mutica
San Joaquin kit fox (E)

Plants

Amsinckia grandiflora
large-flowered fiddleneck (E)

Proposed Species

Amphibians

Rana draytonii
Critical habitat, California red-legged frog (PX)

Key:

(E) *Endangered* - Listed as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

Appendix E

Special-Status Species Potentially Occurring in the Project Area

APPENDIX E
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA

Scientific Name **Common Name**	**Status Fed/State/Other**	**Habitat Requirements**	**Likelihood of Occurrence in Project Area**
Plants			
Amsinckia grandiflora Large-flowered fiddleneck	FE/SE/1B.1	Occurs in cismontane woodland, valley and foothill grassland at elevations ranging from 275 to 550 meters. Blooms April to May. Known fewer than 5 natural occurrences.	**None:** Project area occurs outside the known elevation range for this species.
Anomobryum julaceum Slender silver moss	None/None/2.2	Occurs in broadleafed upland forest, lower montane coniferous forest, north and coast coniferous forest on damp rock and soil on outcrops. Often found on road cuts. Elevation ranges from 100 to 1000 meters. Infrequent in California but abundant in much of its range outside the state.	**None:** No suitable habitat in the project area.
Arctostaphylos auriculata Mt. Diablo manzanita	None/None/1B.3	Occurs in chaparral (sandstone), and cismontane woodland. Blooms January to March. Elevation ranges from 135 to 650 meters. Known from fewer than twenty occurrences.	**None:** No suitable habitat in the project area.
Arctostaphylos manzanita ssp. *laevigata* Contra Costa manzanita	None/None/1B.2	Occurs in chaparral on rocky soils. Blooms from January to March, occasionally into April. Elevation ranges from 500 to 1100 meters.	**None:** No suitable habitat in the project area.
Astragalus tener var. *tener* alkali milk-vetch	None/None/1B.2	Occurs in playas, valley and foothill grassland in adobe clay soil substrates, and vernal pools with alkaline soils at elevations ranging from 1 - 60 meters; blooms April to May	**None:** No suitable habitat in the project area.
Atriplex cordulata Heartscale	None/None/1B.2	Occurs in chenopod scrub, meadows and seeps, and valley and foothill grassland on sandy, and/or saline or alkaline soils. Blooms from April to October. Elevation ranges from 1 to 375 meters.	**None:** No suitable habitat in the project area (i.e., no saline or alkaline soils).
Atriplex depressa Brittlescale	None/None/1B.2	Occurs in chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pools, typically on alkaline, clay soils. Blooms from April to October. Elevation ranges from 1 to 320 meters.	**None:** No suitable habitat in the project area (i.e., no alkaline soils).
Atriplex joaquiniana San Joaquin spearscale	None/None/1B.2	Occurs in chenopod scrub, meadows and seeps, playas, valley and foothill grassland on alkaline soils. Blooms from April to October. Elevation range extends from 1 to 835 meters	**None:** No suitable habitat in the project area (i.e., no alkaline soils).
Blepharizonia plumosa Big tarplant	None/None/1B.1	Occurs in valley and foothill grassland. Blooms from July to October. Elevation range extends from 30 to 505 meters. Historical occurrences probably extirpated by agriculture and non-native plants.	**Low:** Potentially suitable habitat present, but site is regularly mowed and/or disked.
California macrophylla Round-leaved filaree	None/None/1B.1	Occurs in cismontane woodland, and valley and foothill grassland on clay soils. Blooms from March to May. Elevation range extends from 15 to 1,200 meters.	**Low:** Potentially suitable habitat present, but site is regularly mowed and/or disked.

APPENDIX E SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA			
Scientific Name **Common Name**	**Status** **Fed/State/Other**	**Habitat Requirements**	**Likelihood of Occurrence in Project Area**
Calochortus pulchellus Mt. Diablo fairy-lantern	None/None/1B.2	Occurs in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland. Blooms from April to June. Elevation range extends from 30 to 840 meters.	**Low:** Potentially suitable habitat present, but site is regularly mowed and/or disked.
Campanula exigua Chaparral harebell	None/None/1B.2	Occurs in chaparral, typically on rocky, serpentinite soils. Blooms from May to June. Elevation ranges from 275 to 1250 meters.	**None:** No suitable habitat in the project area.
Castilleja rubicundula ssp. *rubicundula* Pink creamsacs	None/None/1B.2	Occurs in openings in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland on serpentinite soils. Blooms from April to June. Elevation ranges from 20 to 910 meters.	**Low:** Potentially suitable habitat present, but site is regularly mowed and/or disked.
Centromadia parryi ssp. *congdonii* Congdon's tarplant	None/None/1B.2	Occurs in valley and foothill grasslands with alkaline soil substrates. Blooms from May to October. Elevation range extends from 1 to 230 meters	**None:** No suitable alkaline soil habitat in the project area.
Chloropyron molle ssp. *molle* Soft bird's-beak	FE/CR/1B.2	Occurs in coastal salt marshes and swamps. Blooms from July to November. Ranges in elevations from 0 to 3 meters.	**None:** No suitable habitat in the project area.
Cicuta maculata var. *bolanderi* Bolander's water-hemlock	None/None/2.1	Occurs in coastal, fresh or brackish water marshes and swamps. Blooms from July to September. Elevation range extends from 0 to 200 meters.	**None:** No suitable habitat in the project area.
Cordylanthus nidularius Mt. Diablo bird's-beak	None/None/1B.1	Occurs in chaparral on serpentinite soils. Blooms July to August. Elevation ranges from 600 to 800 meters Known from only one occurrence on Mt. Diablo.	**None:** No suitable habitat in the project area.
Cryptantha hooveri Hoover's cryptantha	None/None/1A	Occurs in inland dunes, and valley and foothill grassland on sandy soils. Blooms from April to May. Elevation ranges from 9 to 150 meters. Last seen in 1939. Recent surveys unsuccessful; additional field work needed.	**None:** No suitable habitat in the project area. Possibly extinct.
Delphinium californicum ssp. *interius* Hospital Canyon larkspur	None/None/1B.2	Occurs in openings in chaparral and cismontane woodland, usually at mesic sites. Blooms April to June. Elevation ranges from 230 to 1,095 meters.	**None:** No suitable habitat in the project area.
Delphinium recurvatum Recurved larkspur	None/None/1B.2	Occurs in chenopod scrub, cismontane woodland, and valley and foothill grassland on alkaline soils. Blooms from March to June. Elevation ranges from 3 to 750 meters.	**None:** No suitable alkaline soil habitat in the project area.
Didymodon norrisii Norris' beard moss	None/None/2.2	Occurs in rocky, intermittently mesic areas in cismontane woodland, and lower montane coniferous forest. Elevation ranges from 600 to 1,973 meters.	**None:** No suitable habitat in the project area.

APPENDIX E SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA			
Scientific Name **Common Name**	**Status** **Fed/State/Other**	**Habitat Requirements**	**Likelihood of Occurrence in Project Area**
Dirca occidentalis western leatherwood	None/None/1B.2	Occurs in broad-leafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland habitats. Blooms from January to March Elevation range extends from 50 to 395 meters.	**None:** No suitable habitat in the project area.
Downingia pusilla Dwarf downingia	None/None/2.2	Occurs in mesic sites in valley and foothill grassland and vernal pools Blooms from March to May. Elevation ranges from 1 to 445 meters.	**None:** No suitable habitat in the project area.
Eriastrum brandegeeae Brandegee's eriastrum	None/None/1B.2	Occurs in chaparral, and cismontane woodland on volcanic, sandy soils. Blooms from April to August. Elevation ranges from 305 to 1,030 meters.	**None:** No suitable habitat in the project area.
Eriogonum nudum var. *psychicola* Antioch Dunes buckwheat	None/None/1B.1	Occurs in inland dunes. Blooms July to October. Elevation ranges from 0 to 20 meters. Known from a single occurrence in the Antioch Dunes.	**None:** No suitable habitat in the project area.
Eriogonum nudum var. *regirivum* Kings River buckwheat	None/None/1B.2	Occurs in cismontane woodland on carbonate, rocky soils. Blooms August to November. Elevation ranges from 150 to 300 meters. Known only from 5 extant occurrences. Possibly extirpated from Contra Costa County.	**None:** No suitable habitat in the project area.
Eriogonum truncatum Mt. Diablo buckwheat	None/None/1B.1	Occurs in chaparral, coastal scrub and valley and foothill grassland on sandy soils. Blooms from April to September, and occasionally into November or December. Elevation ranges from 3 to 350 meters. Rediscovered in May 2005 by Michael Park in Mount Diablo State Park.	**None:** No suitable habitat in the project area. Project area outside the known range of the species.
Erysimum capitatum var. *angustatum* Contra Costa wallflower	FE/SE/1B.1	Occurs in inland dunes. Blooms from March to July. Elevation ranges from 3 to 20 meters. Known only from the Antioch Dunes.	**None:** No suitable habitat in the project area.
Eschscholzia rhombipetala Diamond-petaled California poppy	None/None/1B.1	Occurs in valley and foothill grassland on alkaline, clay soils. Blooms March to April. Elevation ranges from 0 to 975 meters.	**None:** No suitable alkaline soil habitat in the project area.
Fritillaria agrestis Stinkbells	None/None/1B.2	Occurs in chaparral, cismontane woodland, pinyon and juniper woodland and valley and foothill grassland on clay, sometimes serpentinite soils. Blooms March to June. Elevation ranges from 10 to 1,555 meters.	**Low:** Potentially suitable habitat present, but site is regularly mowed and/or disked.
Helianthella castanea Diablo helianthella	None/None/1B.2	Occurs in broad-leafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland habitats. Blooms from March to June. Elevation range extends from 60 to 1,300 meters.	**None:** Project area outside the known elevation range of the species.

APPENDIX E SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA			
Scientific Name **Common Name**	**Status** **Fed/State/Other**	**Habitat Requirements**	**Likelihood of Occurrence in Project Area**
Hesperolinon breweri Brewer's western flax	None/None/1B.2	Occurs in chaparral, cismontane woodland, and valley and foothill grassland usually on serpentinite soils. Blooms May to July. Elevation ranges from 30 to 900 meters.	**None:** No suitable (serpentine) habitat in the project area.
Hibiscus lasiocarpos var. *occidentalis* Woolly rose-mallow	None/None/2.2	Occurs in freshwater marshes and swamps. Blooms June to September. Elevation ranges from 0 to 120 meters.	**None:** No suitable habitat in the project area.
Isocoma arguta Carquinez goldenbush	None/None/1B.1	Occurs in valley and foothill grassland on alkaline soils. Blooms August to December. Elevation ranges from 1 to 20 meters.	**None:** No suitable alkaline soil habitat in the project area.
Lasthenia conjugens Contra Costa goldfields	FE/None/1B.1	Occurs in cismontane woodland, alkaline playas, valley and foothill grassland, and mesic vernal pools ranging from 0 - 470 meters. Blooms from March to June.	**None:** No suitable habitat in the project area.
Lathyrus jepsonii var. *jepsonii* Delta tule pea	None/None/1B.2	Occurs in fresh and brackish water marshes and swamps. Blooms from May to July, but occasionally to September. Elevation range extends from 0 to 4 meters.	**None:** No suitable habitat in the project area.
Lilaeopsis masonii Mason's lilaeopsis	None/CR/1B.1	Occurs in fresh or brackish water marshes and swamps, and riparian scrub. Blooms from April to November. Elevation range extends from 0 to 10 meters.	**None:** No suitable habitat in the project area.
Limosella subulata Delta mudwort	None/None/2.1	Occurs in marshes and swamps. Blooms May to August. Elevation ranges from 0 to 3 meters.	**None:** No suitable habitat in the project area.
Madia radiata Showy golden madia	None/None/1B.1	Occurs in cismontane woodland, and valley and foothill grassland. Blooms March to May. Elevation ranges from 25 to 1,215 meters.	**Low:** Potentially suitable habitat present, but site is regularly mowed and/or disked.
Malacothamnus hallii Hall's bush-mallow	None/None/1B.2	Occurs in chaparral, and coastal scrub. Blooms May to September, occasionally into October. Elevation ranges from 10 to 760 meters.	**None:** No suitable habitat in the project area.
Monolopia gracilens Woodland woollythreads	None/None/1B.2	Occurs in openings in broadleafed upland forest, chaparral, cismontane woodland, north coast coniferous forest and valley and foothill grassland on serpentine soils. Blooms March to July, but occasionally as early as February. Elevation ranges from 100 to 1,200 meters.	**None:** No suitable (serpentine) habitat in the project area.
Navarretia gowenii Lime Ridge navarretia	None/None/1B.1	Occurs in chaparral. Blooms May to June. Elevation ranges from 180 to 305 meters. Known from only four occurrences.	**None:** No suitable habitat in the project area.
Oenothera deltoides ssp. *howellii* Antioch Dunes evening-primrose	FE/SE/1B.1	Occurs in inland dunes. Blooms March to September. Elevation ranges from 0 to 30 meters.	**None:** No suitable habitat in the project area.

APPENDIX E SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA			
Scientific Name **Common Name**	**Status** **Fed/State/Other**	**Habitat Requirements**	**Likelihood of Occurrence in Project Area**
Phacelia phacelioides Mt. Diablo phacelia	None/None/1B.2	Occurs in chaparral and cismontane woodland on rocky soils. Blooms April to May. Elevation ranges from 500 to 1,370 meters. Known from fewer than twenty occurrences.	**None:** No suitable habitat in the project area.
Plagiobothrys hystriculus Bearded popcornflower	None/None/1B.1	Occurs in mesic valley and foothill grassland, and along the margins of vernal pools and vernal swales. Blooms April to May. Elevation ranges 0 to 274 meters.	**None:** No suitable habitat in the project area.
Potamogeton zosteriformis Eel-grass pondweed	None/None/2.2	Occurs in assorted freshwater marshes and swamps. Blooms June to July. Elevation ranges from 0 to 1,860 meters.	**None:** No suitable habitat in the project area.
Sanicula saxatilis Rock sanicle	None/CR/1B.2	Occurs in broadleafed upland forest, chaparral, and valley and foothill grassland on rocky soils. Blooms April to May. Elevation ranges from 620 to 1,175 meters. Known from fewer than fifteen occurrences.	**None:** Project area outside the known elevation range of the species.
Scutellaria lateriflora Side-flowering skullcap	None/None/2.2	Occurs in mesic meadows and seeps, and marshes and swamps. Blooms July to September. Elevation ranges from 0 to 500 meters. Known in California from only three occurrences (more populations occur outside the state).	**None:** No suitable habitat in the project area.
Senecio aphanactis Chaparral ragwort	None/None/2.2	Occurs in chaparral, cismontane woodland, and coastal scrub, sometimes on alkaline soils. Blooms from January to April. Elevation range extends from 15 to 800 meters.	**None:** No suitable habitat in the project area.
Sidalcea keckii Keck's checkerbloom	FE/None/1B.1	Occurs in cismontane woodland, and valley and foothill grassland on serpentinite, clay soils. Blooms from April to May, occasionally into June. Elevation ranges from 75 to 650 meters.	**None:** Project area outside the known elevation range of the species.
Streptanthus albidus ssp. *peramoenus* Most beautiful jewel-flower	None/None/1B.2	Occurs in chaparral, cismontane woodland, and valley and foothill grasslands, often on serpentine soils. Blooms from April to June. Elevation range extends from 110 to 1000 meters.	**None:** Project area outside the known elevation range of the species.
Streptanthus hispidus Mt. Diablo jewel-flower	None/None/1B.3	Occurs in chaparral, and valley and foothill grassland on rocky soils. Blooms March to June. Elevation ranges from 365 to 1,200 meters. Known from fewer than fifteen occurrences in the Mt. Diablo area.	**None:** Project area outside the known elevation range of the species.
Stuckenia filiformis Slender-leaved pondweed	None/None/2.2	Occurs in assorted shallow freshwater marshes and swamps. Blooms May to July. Elevation ranges from 300 to 2,150 meters.	**None:** No suitable habitat in the project area.
Symphyotrichum lentum Suisun Marsh aster	None/None/1B.2	Occurs in fresh and brackish water marshes and swamps. Blooms from May to November. Elevation range extends from 0 to 3 meters.	**None:** No suitable habitat in the project area.

APPENDIX E SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA			
Scientific Name **Common Name**	**Status** **Fed/State/Other**	**Habitat Requirements**	**Likelihood of Occurrence in Project Area**
Triquetrella californica Coastal triquetrella	None/None/1B.2	Occurs in coastal bluff scrub, and coastal scrub. This species is a moss that grows directly on soil substrates. Elevation range extends from 10 to 100 meters.	**None:** No suitable habitat in the project area.
Tropidocarpum capparideum Caper-fruited tropidocarpum	None/None/1B.1	Occurs in valley and foothill grassland on alkaline hills. Blooms March to April. Elevation ranges from 1 to 455 meters.	**None:** No suitable alkaline soil habitat in the project area.
Viburnum ellipticum Oval-leaved viburnum	None/None/2.3	Occurs in chaparral, cismontane woodland, and lower montane coniferous forest. Blooms from May to June. Elevation range extends from 215 to 1,400 meters.	**None:** No suitable habitat in the project area.
Invertebrates			
Andrena blennospermatis Blennosperma vernal pool andrenid bee	None/None/S2	Occurs in grasslands in association with vernal pools.	**None:** No suitable habitat in the project area.
Anthicus antiochensis Antioch Dunes anthicid beetle	None/None/S1	Occurs in interior dune habitat.	**None:** No suitable habitat in the project area.
Apodemia mormo langei Lange's metalmark butterfly	FE/None/S1	Known only from the Antioch Dunes in Contra Costa County, California. Larval host plant is the naked stemmed buckwheat. The buckwheat, along with Douglas' ragwort and San Joaquin snakeweed is an important nectar source for adults.	**None:** No suitable habitat in the project area.
Branchinecta conservatio Conservancy fairy shrimp	FE/none/none	Large, alkaline playa pools in open grasslands	**None:** No suitable habitat in the project area.
Branchinecta longiantenna Longhorn fairy shrimp	FE/None/None	Endemic to the eastern margin of the central coast mountains in seasonally astatic grassland vernal pools. Typically inhabit small, clear-water depressions in sandstone and clear-to-turbid clay/grass-bottomed pools in shallow swales.	**None:** No suitable habitat in the project area.
Branchinecta lynchi Vernal pool fairy shrimp	FT/none/none	Endemic to the grasslands of the central valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Typically inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	**None:** No suitable habitat in the project area.
Vernal pool fairy shrimp Critical Habitat	FX/none/none	N/A	**None:** Project area does not occur within a critical habitat unit for this species.
Branchinecta mesovallensis Midvalley fairy shrimp	None/None/S2	Endemic to the grasslands of the central valley, in astatic rain-filled vernal pools.	**None:** No suitable habitat in the project area.

APPENDIX E
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA

Scientific Name **Common Name**	**Status Fed/State/Other**	**Habitat Requirements**	**Likelihood of Occurrence in Project Area**
Callophrys mossii bayensis San Bruno elfin butterfly	FE/None/S1	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County. Colonies are located on steep, north-facing slopes within the fog belt. Larval host plant is stonecrop (*Sedum spathulifolium)*.	**None:** No suitable habitat in the project area. Project area outside the known range of the species.
Coelus gracilis San Joaquin dune beetle	None/None/S1	Occurs in interior dune habitat.	**None:** No suitable habitat in the project area.
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT/None/None	Entirely dependent on elderberry shrubs (*Sambucus* spp.) for all stages of its life cycle. Occurs in or near riparian habitats where their elderberry host plant is present.	**None:** No suitable habitat in the project area.
Efferia antiochi Antioch efferian robberfly	None/None/S1S3	Habitat not well understood. Recorded only from Antioch in 1939.	
Eucerceris ruficeps Redheaded sphecid wasp	None/None/S1S2	Nests in sandy substrate in the Delta and foothills of the Central Valley.	**None:** No suitable habitat in the project area.
Helminthoglypta nickliniana bridgesi Bridges' coast range shoulderband	None/None/S1	Occurs in woodland, scrub, and grassland habitats where it shelters under downed branches or logs, or in crevices in boulders and rock outcrops.	**None:** No suitable habitat in the project area.
Hygrotus curvipes Curved-foot hygrotus diving beetle	None/None/S1	Aquatic; known only from Alameda and Contra Costa counties.	**None:** No suitable habitat in the project area.
Idiostatus middlekauffi Middlekauff's shieldback katydid	None/None/S1	Occurs in interior dune habitats	**None:** No suitable habitat in the project area.
Lepidurus packardi Vernal pool tadpole shrimp	FE/none/none	Occurs in vernal pools and other seasonal wetlands in open grasslands. Does not occur in areas subject to flooding from large rivers or other waterways.	**None:** No suitable habitat in the project area.
Linderiella occidentalis California linderiella	none/none/S2S3	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity, conductivity, and TDS.	**None:** No suitable habitat in the project area.
Lytta molesta Molestan blister beetle	None/None/S2	Inhabits the Central Valley of California, from Contra Costa to Kern and Tulare counties. Typically associated with vernal pool vegetation.	**None:** No suitable habitat in the project area.
Metapogon hurdi Hurd's metapogon robberfly	None/None/S1S3	Occurs in interior dune habitats.	**None:** No suitable habitat in the project area.
Myrmosula pacifica Antioch multilid wasp	None/None/SH	Occurs in interior dune habitats.	**None:** No suitable habitat in the project area.
Perdita scitula antiochensis Antioch andrenid bee	None/None/S1	Occurs in interior dune habitats. Recorded only from Antioch Dunes and Oakley, Contra Costa County.	**None:** No suitable habitat in the project area.
Philanthus nasalis Antioch specid wasp	None/None/S1	Occurs in interior dune habitats. Recorded only from Antioch Dunes in 1948.	**None:** No suitable habitat in the project area.

APPENDIX E
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA

Scientific Name **Common Name**	**Status Fed/State/Other**	**Habitat Requirements**	**Likelihood of Occurrence in Project Area**
Sphecodogastra antiochensis Antioch Dunes halcitid bee	None/None/S1	Occurs in interior dune habitats.	**None:** No suitable habitat in the project area.
Fish			
Archoplites interruptus Sacramento perch	None/None/CSC	Historically found in the sloughs, slow-moving rivers, and lakes of the central valley. Prefer warm water. Aquatic vegetation is essential for young. Tolerant of a wide range of physio-chemical water conditions.	**None:** No suitable habitat in the project area.
Hypomesus transpacificus delta smelt	FT/SE/S1	Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities less than 10 ppt., most often at salinities less than 2 ppt.	**None:** No suitable habitat in the project area.
Oncorhynchus mykiss Central Valley steelhead	FT/none/none	Requires beds of loose, silt-free, coarse gravel for spawning. Also needs cover, cool water and sufficient dissolved oxygen. Passes through the San Francisco Bay during migrations to upstream spawning habitat.	**None:** No suitable habitat in the project area.
Central Valley steelhead Critical Habitat	FX/none/none	N/A	**None:** Project area does not occur within a critical habitat unit for this species.
Oncorhynchus tshawytscha Central Valley spring-run Chinook salmon	FT/none/none	Spawns in the Sacramento River but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14 C for spawning. Passes through the San Francisco Bay during migrations to upstream spawning habitat.	**None:** No suitable habitat in the project area.
Oncorhynchus tshawytscha Winter-run Chinook salmon, Sacramento River	FE/none/none		
Amphibians			
Ambystoma californiense California tiger salamander	FT/ST/CSC	Occurs in grasslands and open oak woodland that provide suitable aestivation (i.e., summer retreats) and/or breeding habitat in close proximity to vernal pools, seasonal wetlands, or artificial impoundments (e.g., stock ponds). Threatened by predation from Centrachid fish species (e.g., sunfish, bluegill, large-mouth bass), bullfrogs, and signal and red swamp crayfish.	**None:** No suitable habitat in the project area.
Rana boylii Foothill yellow-legged frog	none/none/CSC	Partially shaded, rocky streams at low to moderate elevations, in areas of chaparral, open woodland, and forest. Breeds in pools of streams. Eggs usually are attached to gravel or rocks at edge of pools or streams.	**None:** No suitable habitat in the project area.
Rana draytonii California red-legged frog	FT/none/none	Slow-flowing portions of perennial streams, ephemeral streams, and hillside seeps that maintain pool environments (including ponds) or saturated soils throughout the summer months.	**None:** No suitable habitat in the project area.

APPENDIX E SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA			
Scientific Name **Common Name**	**Status** **Fed/State/Other**	**Habitat Requirements**	**Likelihood of Occurrence in Project Area**
Spea hammondii western spadefoot	none/none/CSC	Vernal pools and other seasonal wetlands in open grassland habitat. Aestivates by burrowing into mud at bottom of seasonal pools, or entering small mammal burrows to endure the dry season.	**None:** No suitable habitat in the project area.
Reptiles			
Anniella pulchra pulchra *silvery legless lizard*	none/none/CSC	Stabilized dunes, coastal scrub, chaparral and oak woodlands. Found in loose friable (usually sandy) soils under leaf litter. Highly dependent on soil moisture.	**None:** No suitable habitat in the project area.
Emys marmorata western pond turtle	none/none/CSC	Permanent or nearly permanent water in a wide variety of aquatic habitats. Requires basking sites. Nest sites may be found up to 0.5 km from water.	**None:** No suitable habitat in the project area.
Masticophis flagellum ruddocki San Joaquin whipsnake	none/none/CSC	Open, dry habitats with little or no tree cover. Found in valley grassland and saltbush scrub in the San Joaquin Valley. Needs mammal burrows for refuge and oviposition sites.	**Low to Moderate:** Some potentially suitable ruderal/grassland habitat present, but the history of disturbance and human activity in the project area may discourage this species from occurring there.
Masticophis lateralis euryxanthus Alameda whipsnake	none/none/CSC	Scrub and chaparral habitats in Alameda and Contra Costa counties but may occur in any inner Coast Range plant communities, including grasslands, open woodlands, rocky slopes, and along open streams and arroyos near scrub and chaparral.	**None:** No suitable habitat in the project area.
Phrynosoma blainvillii Coast horned lizard	none/none/CSC	Sacramento Valley, including foothills, south to southern California; Coast Ranges south of Sonoma County; below 4,000 feet (1,219 meters) in northern California Grasslands, brush lands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging.	**None:** No suitable habitat in the project area. No sandy soils, and no native ant colonies present.
Thamnophis gigas Giant garter snake	FT/none/CSC	Historically occurred in cattail and tule marshes on the central valley floor. Has since adapted to a variety of artificial drainages, particularly those associated with rice farming. Requires open water supporting fish and/or amphibian prey, with vegetative cover in the water and on the banks. Also requires adjacent uplands for aestivation. Does not occur in major rivers.	**None:** No suitable habitat in the project area.

APPENDIX E SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA			
Scientific Name **Common Name**	**Status** **Fed/State/Other**	**Habitat Requirements**	**Likelihood of Occurrence in Project Area**
Birds			
Agelaius tricolor tricolored blackbird	none/none/CSC	Nests in dense stands of tules, cattails or blackberries adjacent to open grasslands or agricultural fields. Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	**None:** No suitable habitat in the project area.
Ammodramus savannarum grasshopper sparrow	none/none/CSC	Grasslands, open fields, prairies and marshes.	**Moderate:** Potentially suitable habitat in the project area. Not observed during surveys of the site.
Aquila chrysaetos golden eagle	None/None/S3	Occurs in rolling foothills, mountain areas, sage-juniper flats, and desert habitats. Nests on cliffs and in large trees in open areas. Alternative nest sites are maintained, and old nests are often reused	**Low to Moderate:** No nesting habitat present, but this species could forage in the project area.
Ardea herodias great blue heron	none/none/S4	(Nesting colony) A colonial nester in tall trees, cliff sides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	**Low:** Some potential nest trees present, but only limited open water habitats in the immediately surrounding region.
Asio flammeus short-eared owl	None/None/CSC	Swamps, meadows, alfalfa fields. Found in open, treeless areas with elevated sites for perches and dense vegetation for roosting and nesting. Tule patches and tall grass needed for nesting and daytime seclusion.	**Low to Moderate:** Potential nesting habitat present, but limited by disking, grazing and other activities. This species could forage in the project area.
Athene cunicularia burrowing owl	none/none/CSC	Nests in small mammal burrows that are in or adjacent to open dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**Known:** Suitable habitat in the project area. Not observed during the most recent surveys, but this species has been documented on the site in 2008, 2009, and 2010.
Buteo regalis Ferruginous hawk	none/ST/none	(Wintering) open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon-juniper habitats. Mostly eats lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	**Moderate:** This winter migrant species could forage in the project area.

APPENDIX E SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA			
Scientific Name **Common Name**	**Status** **Fed/State/Other**	**Habitat Requirements**	**Likelihood of Occurrence in Project Area**
Buteo swainsoni Swainson's hawk	None/ST/S3	Forages in a wide variety of open habitats such as grasslands, open scrub, and agricultural fields. Nests in large, typically riparian trees, but will occasionally utilize ornamental species such as Eucalyptus if they are near foraging habitat.	**Moderate:** Potential nesting and foraging habitat present in the project area. Not observed during surveys of the site. Nearest site is 800 feet to the northeast
Circus cyaneus Northern harrier	none/none/CSC	Grasslands and open habitats; typically nests on the ground in dense vegetation.	**Moderate:** Potential nesting and foraging habitat present in the project area. Not observed during surveys of the site.
Dendroica petechia brewsteri yellow warbler	none/none/CSC	Nest in riparian plant associations, prefers willows, cottonwoods, aspens, sycamores, and alders for nesting and foraging. Also nests in montane shrubbery in open conifer forests.	**None:** No suitable habitat in the project area.
Elanus leucurus White-tailed kite	none/none/FP	(Nesting colony) Rolling foothills/valley margins with scattered oaks, river bottomlands, riparian woodlands, partially cleared or cultivated fields, or marshes next to deciduous woodland. Open grasslands, meadows, or marshes required for foraging close to isolated, dense-topped trees for nesting and perching. Nests placed near tops of dense oak, willow or other tree stands.	**Moderate:** Potential nesting and foraging habitat present in the project area. Not observed during surveys of the site.
Eremophila alpestris actia California horned lark	None/None/S3	Found throughout much of the state, less common in mountainous areas of the north coast and in coniferous or chaparral habitats Common to abundant resident in a variety of open habitats, usually where large trees and shrubs are absent; grasslands and deserts to dwarf shrub habitats above tree line.	**None:** No suitable habitat in the project area. Not observed during surveys of the site.
Falco mexicanus Prairie falcon	None/None/S3	Forages in open grasslands, sagebrush flats, and desert scrub habitats. Nests on cliffs, banks. Nest consists of a scrape on a depression or ledge in an open site.	**Moderate:** This species may forage in the project area.
Geothlypis trichas sinuosa Saltmarsh common yellowthroat	None/None/CSC	Occurs in salt marsh and adjacent riparian habitats. Nests in tall herbaceous vegetation, typically within one meter of the ground.	**None:** No suitable habitat in the project area.
Lanius ludovicianus Loggerhead shrike	None/None/CSC	Resident and winter visitor in lowlands and foothills throughout California; rare on coastal slope north of Mendocino County, occurring only in winter Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	**Moderate:** Potential nesting and foraging habitat present in the project area. Not observed during surveys of the site.

APPENDIX E SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA			
Scientific Name **Common Name**	**Status** **Fed/State/Other**	**Habitat Requirements**	**Likelihood of Occurrence in Project Area**
Laterallus jamaicensis coturniculus California black rail	none/ST/none	Occurs most commonly in tidal emergent wetlands dominated by pickleweed, or in brackish marshes supporting bulrushes in association with pickleweed. In freshwater, usually found in bulrushes, cattails, and saltgrass. Usually found in immediate vicinity of tidal sloughs.	**None:** No suitable habitat in the project area.
Melospiza melodia maxillaris Suisun song sparrow	None/None/CSC	Occurs in tidal marshes on the Suisun Bay. Requires dense vegetation for nesting sites, song perches, and cover for refuge from predators.	**None:** No suitable habitat in the project area.
Pandion haliaetus Osprey	none/none/S3	(Nesting) Builds large stick nests in forks of trees, rocky outcrops, utility poles, artificial platforms or offshore islets near lakes, ponds or marshes.	**None:** No suitable habitat in the project area.
Phalacrocorax auritus Double-crested cormorant	none/none/S3	Colonial nester on coastal cliffs, but also nests along coast on sequestered islets, usually on ground with sloping surface or in tall trees along the water margin.	**None:** No suitable habitat in the project area.
Progne subis Purple martin	none/none/CSC	Nest in cavities in trees, under bridges and other human-made structures.	**Low:** Marginal nesting and foraging habitat present in the project area. Not observed during surveys of the site.
Rallus longirostris obsoletus California clapper rail	FE/SE/CSC	Salt-water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	**None:** No suitable habitat in the project area.
Riparia riparia Bank swallow	None/ST/None	(Nesting) colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	**None:** No suitable habitat in the project area.
Sternula antillarum browni Endangered Endangered California least tern	FE/SE/CSC	Nesting colonies found along the coast and in San Francisco Bay. Uses bare or sparsely vegetated flat beaches, alkali flats, and other relatively open areas for nesting.	**None:** No suitable habitat in the project area.
Mammals			
Antrozous pallidus Pallid bat	none/none/CSC	Found in deserts, grasslands, shrub lands, woodlands and forests. Roosts in rock crevices, buildings, and bridges in arid regions.	**Moderate:** Potential roosting and foraging habitat present in the project area.
Dipodomys heermanni berkeleyensis Berkeley kangaroo rat	none/none/CSC	Needs fine, deep, well-drained soil for burrowing, typically on open grassy hilltops, and open spaces in chaparral and blue oak/foothill pine woodlands.	**None:** No suitable habitat in the project area.
Lasiurus blossevillii western red bat	none/none/CSC	Solitary, foliage roosting species that is infrequently observed. Roosts are typically in large riparian trees outside of urban areas. Forages in open areas or habitat edges.	**Moderate:** Potential roosting and foraging habitat present in the project area.

APPENDIX E SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA			
Scientific Name **Common Name**	**Status** **Fed/State/Other**	**Habitat Requirements**	**Likelihood of Occurrence in Project Area**
Lasiurus cinereus hoary bat	none/none/S4	Solitary, foliage roosting species that is infrequently observed. Roosts are typically in large riparian trees outside of urban areas. Forages in open areas or habitat edges.	**Moderate:** Potential roosting and foraging habitat present in the project area.
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	none/none/CSC	Forest habitats of moderate canopy and moderate to dense understory. Also in chaparral habitats. Constructs nests of shredded grass, leaves and other material. May be limited by availability of nest-building materials.	**None:** No suitable habitat in the project area.
Perognathus inornatus inornatus San Joaquin pocket mouse	none/none/CSC	Typically found in grasslands and blue oak savannas. Needs friable soils.	**Low:** Marginal potential habitat present in the project area. No friable soils present
Reithrodontomys raviventris salt-marsh harvest mouse	FE/SE/CSC	Occurs only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat. Does not burrow; builds loosely organized nests. Requires higher areas for flood escape.	**None:** No suitable habitat in the project area.
Taxidea taxus American badger	none/none/CSC	Occupies a diversity of habitats throughout the state; principal habitat requirements include sufficient prey base, friable soils, and relatively open, uncultivated ground.	**Low:** Potential habitat present in the project area, but no suitable burrows observed during the survey.
Vulpes macrotis mutica San Joaquin kit fox	FE/ST/CSC	Species inhabits suitable grassland, scrubland, alkali meadows and playas, and agricultural landscapes in the San Joaquin Valley and in surrounding foothill areas of the Coast Ranges, Sierra Nevada, and Tehachapi Mountains.	**Low:** Potential habitat present in the project area, but no suitable burrows observed during the survey.
Sensitive Natural Communities			
Alkali Meadow	S2.1	N/A	**None:** Not present in the project area.
Alkali Seep	S2.1	N/A	**None:** Not present in the project area.
Cismontane Alkali Marsh	S1.1	N/A	**None:** Not present in the project area.
Coastal and Valley Freshwater Marsh	S2.1	N/A	**None:** Not present in the project area.
Coastal Brackish Marsh	S2.1	N/A	**None:** Not present in the project area.
Northern Claypan Vernal Pool	S3.1	N/A	**None:** Not present in the project area.
Serpentine Bunchgrass	S2.2	N/A	**None:** Not present in the project area.
Stabilized Interior Dunes	S1.1	N/A	**None:** Not present in the project area.
Valley Needlegrass Grassland	S3.1	N/A	**None:** Not present in the project area.
Valley Sink Scrub	S1.1	N/A	**None:** Not present in the project area.

APPENDIX E
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA

Scientific Name **Common Name**	**Status Fed/State/Other**	**Habitat Requirements**	**Likelihood of Occurrence in Project Area**

Status Definitions:

Federal

- FE – Federally listed as Endangered
- FT – Federally listed as Threatened
- FX – Federally listed species for which Critical Habitat has been designated

State

- SE – State listed as Endangered
- ST – State listed as Threatened
- CR – California Rare
- CSC – Species of Special Concern
- FP – Fully Protected
- S1 - Less than 6 EOs OR less than 1,000 individuals OR less than 2,000 acres
  - S1.1 - very threatened
- S2 - 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
  - S2.1 - very threatened
- S3 - 21-100 EOs or 3,000-10,000 individuals OR 10,000-50,000 acres
  - S3.1 - very threatened
- S4 - Apparently secure within California; this rank is clearly lower than S3 but factors exist to cause some concern; i.e. there is some
  threat, or somewhat narrow habitat.

California Native Plant Society

- 1B.1 - Plants rare, threatened, or endangered in California and elsewhere; seriously threatened in California
- 1B.2 - Plants rare, threatened, or endangered in California and elsewhere, fairly threatened in California
- 2.2 - Plants rare, threatened, or endangered in California, but more common elsewhere; fairly threatened in California

Appendix F

Plant List Observed along the eBART Corridor

Appendix F: Plant List Observed Along the eBART Corridor

Scientific Name	**Common Name**
Acacia melanoxylon	Blackwood acacia
Ailanthus altissima	Tree of heaven
Amsinckia menziesii	Fiddleneck
Avena fatua	Wild oat
Baccharis pilularis	Coyote brush
Brachychiton populneus	Bottle tree
Brassica sp.	Wild mustard
Brodiaea sp.	Brodiaea
Bromus diandrus	Ripgut brome
Bromus hordeaceus	Soft chess
Calandrinia ciliata	Red maids
Capsella bursa-pastoris	Shepherd's purse
Carduus pycnocephalus	Italian thistle
Castilleja exserta	Purple owl's clover
Centaurea solstitialis	Yellow star-thistle
Cerastium fontanum ssp. *vulgare*	Mouse ear chickweed
Claytonia perfoliata	Miner’s lettuce
Convolvulus arvensis	Field bindweed
Cynara scolymus	Globe artichoke
Datura wrightii	Jimsonweed
Epilobium brachycarpum	Annual fireweed
Erodium cicutarium	Red stem filaree
Eucalyptus globulus	Blue gum
Geranium dissectum	Cut-leaf geranium
Grindelia sp.	Gum plant
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley
Hordeum murinum ssp. *leporinum*	Foxtail barley
Juglans hindsii	Northern California black walnut
Lactuca serriola	Prickly lettuce
Lolium multiflorum	Italian rye
Lupinus bicolor	Miniature lupine
Malva parviflora	Cheeseweed
Marah fabaceus	California man-root
Medicago polymorpha	California burr-clover
Nerium oleander	Oleander
Picris echioides	Bristly ox tongue
Poa annua	Annual bluegrass
Prunus dulcis	Almond
Quercus agrifolia	Coast live oak
Raphanus sativa	Wild radish
Rumex crispus	Curly dock
Silybum marianum	Milk thistle
Sonchus asper	Prickly sow-thistle
Trifolium hirtum	Rose clover
Ulmus sp.	Elm
Urtica dioica	Stinging nettle
Vicia sp.	Vetch
Vulpia bromoides	Six week fescue

Appendix G

Arborist Survey Report

Arborist Survey Report

for

eBART

Hillcrest Maintenance Facility Site

City of Antioch, California

9 November 2011

Prepared For:
San Francisco Bay Area Rapid Transit District (BART)
and
Atkins North America, Inc.

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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INTRODUCTION

At the request of San Francisco Bay Area Rapid Transit District (BART) and Atkins North America, Inc., ECORP Consulting, Inc. (ECORP) has conducted an arborist survey within a portion of the proposed East Contra Costa BART Extension (eBART) facility sites in the City of Antioch, California, specifically the Hillcrest maintenance facility. The purpose of this survey is to comply with Mitigation Measure BIO-6.1, Conduct tree survey and replace trees at suitable ratios, from the East Contra Costa BART Extension (eBART) Mitigation Monitoring and Reporting Plan (PBS&J 2009), adopted by the BART Board of Directors in April 2009. The mitigation measure calls for evaluating impacts to trees that are designated as "indigenous established, mature, or landmark trees in the City of Antioch."

ECORP conducted a field survey to identify trees that may be subject to regulation and protection under the City of Antioch (City) Municipal Code 9-5.1201-1212 (Article 12 Tree Preservation and Regulation) and Section 9-5.203 (Definitions). These survey results are intended to provide a basis for tree impact analysis, but do not include a hazard assessment, tree health diagnosis, preservation or removal recommendations, or pruning recommendations. The survey targeted all trees that are considered Established Trees by the City [i.e., those that measured ten (10) inches or greater in diameter at breast height (DBH)]. The survey further classified Established Trees into the following categories, based on the City's definitions:

- Mature Tree – any tree with a DBH of 26 inches or greater.
- Landmark Tree – any tree with a DBH of 48 inches or greater, or greater than 40 feet in height.
- Indigenous Tree – any tree of the following species: California buckeye (*Aesculus californica*), coast live oak (*Quercus agrifolia*), blue oak (*Quercus douglasii*), canyon live oak (*Quercus chrysolepis*), Valley oak (*Quercus lobata*), interior live oak (*Quercus wislizenii*), or California bay laurel (*Umbellularia californica*).

Per the City, all Established Trees are subject to the City ordinance.

PROJECT LOCATION

The Project site is located within the City of Antioch, Contra Costa County, California. It is situated at the end of Willow Avenue and is between the Union Pacific Railroad right-of-way to the north and Highway 4 to the south. The property lies within Township 2 North, Range 2 East, Section 29 on the "Antioch South, California" USGS 7.5 minute topographic quadrangle (Figure 1. *Project Site and Vicinity*).

MATERIALS AND METHODS

ECORP arborist Sally Bartindale (ISA Certification # WE-8966A) conducted the field arborist survey on 10 October 2011. BART obtained right of entry to a portion of the Hillcrest maintenance facility site. Access was obtained for three properties and an easement area within a fourth property, which are collectively referred to in this report as the project site. These were the easement on Antioch Paving property (Figure 2), the Esver property (Figure 3), the Duarte property (Figure 4), and the maintenance facility project footprint area within the FKP, Inc. property (Figure 5). Trees located on the Antioch Paving property but not within the easement were not surveyed. A project site map provided by BART was used as a base map for the survey. Using the fencelines, easements, and rights-of-way as guides, the project site was walked and data collected for the trees onsite. All trees with a DBH of ten inches or greater and those with an aggregate DBH of ten inches or greater were surveyed. Multi-trunked trees that did not have at least one trunk that measured ten inches or greater were removed from the list of Established trees after clarification with the City regarding trees subject to the Tree Ordinance (Gentry, personal communication).

A uniquely numbered square aluminum identification tag was nailed into the trunk of each surveyed tree. Tree locations and the following data were collected and recorded into a sub-meter accurate Trimble GPS unit:

Diameter: Trunk diameter was measured at approximately 4.5 feet above grade (DBH). Occasional deviations from this height were required for trees with branching at this level, or with unusual structural configurations (e.g., horizontal trunks). On multi-trunked trees (trees with multiple

vertical trunks in contact at or near ground level), the report lists total aggregate diameter.

Drip-line Radius: The maximum distance from trunk to the edge of the canopy was estimated.

Condition: The tree's overall health was estimated. This included evaluation of foliage, evidence of wounds and healing, evidence of fungal attack, density of insect galls, and the amount and condition of attached deadwood. Rated on a three-point scale (poor, fair, good).

Structure: The tree's structural soundness was estimated based on obvious external evidence, including the potential for structural failure of one or more major branches or trunks, the environment and condition of the root crown, symmetry of the canopy, and any noticeable effects of crowding caused by adjacent trees. Rated on a three-point scale (poor, fair, good).

The above data (except tree locations) were also recorded into a survey notebook.

RESULTS

A total of 41 trees were surveyed (Attachment A). Of these, 16 multi-trunked trees were excluded from analysis after communications with City staff advising that they did not consider them Established Trees. The total DBH for the 25 Established Trees was 593.1 inches, with DBH ranging from 10.3 inches to 73.5 inches for any single trunk. Tree data were also analyzed by property, with results presented below.

Easement within the Antioch Paving Property

Seven Established Trees with a collective DBH of 185.1 inches were surveyed within the easement. Tree species and total DBH of each species are presented in Table 1 below. Tree locations within the easement are shown in Figure 2.

Table 1 – Trees Surveyed within the Antioch Paving Property Easement			
Common Name	**Scientific Name**	**Number of Trees Surveyed**	**Total DBH**
Black walnut	*Juglans californica*	2	37.0
English walnut	*Juglans regia*	1	37.4
Peruvian pepper tree	*Schinus molle*	1	73.5
Tree of heaven	*Ailanthus altissima*	3	37.2
Total:		**7**	**185.1**

The Peruvian pepper tree, with a single trunk of 73.5 inches, is considered a Landmark Tree by the City. Though black walnut (*Juglans californica*) is considered regionally native, it is not considered Indigenous by the City. The English walnut had a collective DBH of 37.4 inches, but no single trunk was at least 26 inches or greater; therefore, it is not considered a Mature Tree by the City.

Esver Property

Twelve Established Trees with a collective DBH of 298.8 were assessed within the Esver property. Species of trees and their DBH are presented in Table 2 below. The tree locations within the Esver property are shown in Figure 3.

Table 2 – Trees Surveyed within the Esver Property			
Common Name	**Scientific Name**	**Number of Trees Surveyed**	**Total DBH**
Almond	*Prunus dulcis*	2	35.3
Chinese elm	*Ulmus parvifolia*	1	12.8
Flooded gum	*Eucalyptus rudis*	4	99.7
Forest red gum	*Eucalyptus tereticornis*	2	81.5
Lombardy poplar	*Populus nigra*	1	31.1
Modesto Ash	*Fraxinus velutina* 'Modesto'	2	38.4
Total:		**12**	**298.8**

The above list includes four trees considered Mature by the City: one flooded gum, two forest red gums, and one Modesto ash. Though Modesto ash (*Fraxinus velutina* 'Modesto') is native to the southwest United States, it is not considered regionally native and is not considered Indigenous by the City.

Duarte Property

Five Established Trees with a collective DBH of 96.8 were assessed within the Duarte property. All five trees were tree of heaven. A summary of the tree survey data for the Duarte property is presented in Table 3 below. Tree locations within the Duarte property are shown in Figure 4. None of the trees surveyed within this property are considered Indigenous, Mature, or Landmark Trees by the City.

Table 3 – Trees Surveyed within the Duarte Property

Common Name	Scientific Name	Number of Trees Surveyed	Total DBH
Tree of heaven	*Ailanthus altissima*	5	96.8
Total:		**5**	**96.8**

Tree of heaven is a non-native species considered highly invasive by the California Invasive Plant Council (Cal-IPC). Cal-IPC provides updated lists of non-native plants that have the potential to pose serious problems in wildlands based on the species' ecological impact, invasive potential, and locations throughout the state.

FKP, Inc. Property

One Established Tree was assessed within the project footprint area of the FKP, Inc. property. The survey summary for the one tree, a tree of heaven, is presented below. The project footprint area of the FKP, Inc. property is shown in Figure 5. This tree is not considered an Indigenous, Mature, or Landmark Tree by the City.

Table 4 – Trees Surveyed within the Project Footprint Area of the FKP, Inc. Property

Common Name	Scientific Name	Number of Trees Surveyed	Total DBH
Tree of heaven	*Ailanthus altissima*	1	12.4
Total:		**1**	**12.4**

CONCLUSION

ECORP conducted an arborist survey on four areas within the proposed eBART Hillcrest maintenance facility site, located within the City of Antioch, California: the easement within the Antioch Paving property, the Esver property, the Duarte property, and the project footprint area within the FKP, Inc. property. A total of 25 Established Trees, which had a combined total DBH of 359.1 inches, were surveyed. One Landmark Tree was located within the easement on the Antioch Paving property and four Mature Trees were located on the Esver property. No Indigenous Established Trees were located. Removal of Established Trees, including Landmark and Mature Trees, will require replacement in accordance with Mitigation Measure BIO-6.1 of the East Contra Costa BART Extension (eBART) Mitigation Monitoring and Reporting Plan and in accordance with the City of Antioch Tree Ordinance.

Todd Dawson 11-9-11

TDA WE-8966A

REFERENCES

California Invasive Plant Council (Cal-IPC). 2006. California Invasive Plant Inventory. Cal-IPC Publication 2006-02. California Invasive Plant Council, Berkeley, California. Available from: http://www.cal-ipc.org/ip/inventory/pdf/Inventory2006.pdf.

California Invasive Plant Council (Cal-IPC). 2007. 2007 New weeds added to Cal-IPC Inventory. Cal-IPC Publication Spring 2007. Berkeley, California. Available from: http://www.cal-ipc.org/ip/inventory/pdf/WebUpdate2007.pdf.

City of Antioch. 1994. Article 12: Tree Preservation and Regulation. City Code of Ordinances. City of Antioch, California. 11 July 2011 (date accessed). Available from: http://www.amlegal.com/nxt/gateway.dll/California/antioch/cityofantiochcaliforniacodeofordinances?f=templates$fn=default.htm$3.0$vid=amlegal:antioch_ca

Gentry, M, Senior Planner, City of Antioch. "eBART Photos of Trees." Email to Wayne E. Lind. 13 October 2011.

PBS&J 2009. East Contra Costa BART Extension (eBART) Mitigation Monitoring and Reporting Plan. San Francisco, CA. Adopted 23 April 2009.

U.S Department of the Interior, Geological Survey. 1980. Antioch South, California 7.5-Minute Quadrangle. U.S. Geological Survey.

LIST OF FIGURES

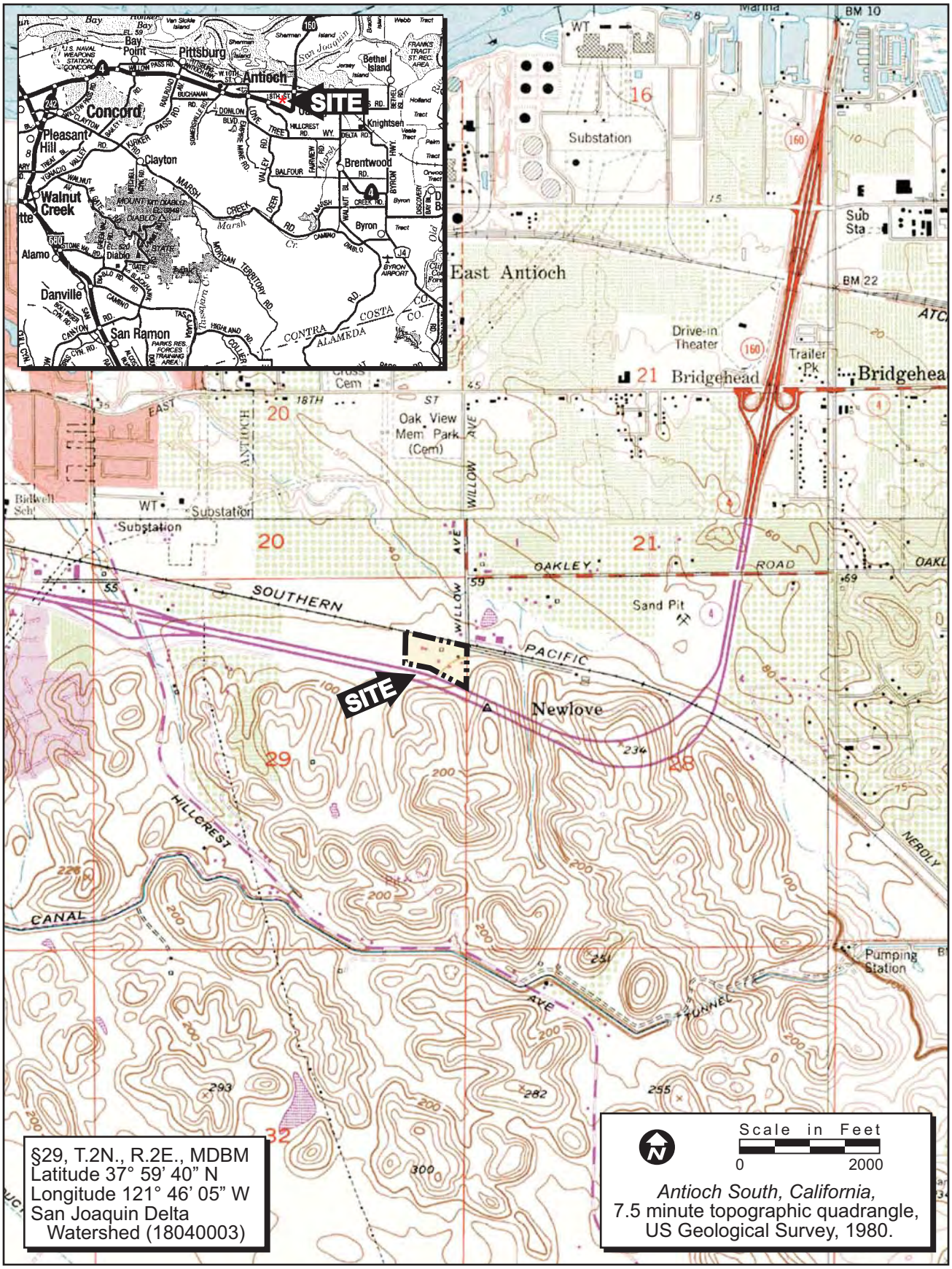


FIGURE 1. Project Site and Vicinity

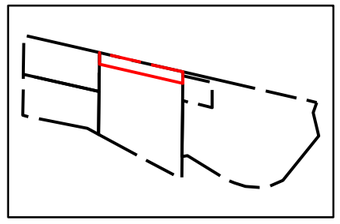
2011-129 eBART Property

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 2.
Trees Surveyed within the Antioch Paving Easement

Map Features

- Easement Area
- Surveyed Tree
- Trees with Aggregate Trunks Not Regulated under City of Antioch Municipal Code



Base and aerial data provided by BART staff.

Scale in Feet

0 100

1 " = 100 '

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
KOrtega

Location: N:\2011\2011-129 eBart\MAPS\Vegetation\Oak Survey\Antioch\PavingProp_Oak.mxd (11/9/2011)

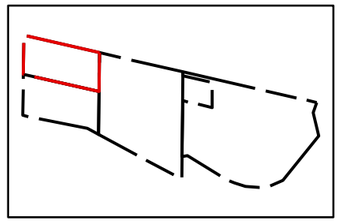
2011-129 eBART Hillcrest Maintenance Facility Site

Map Date: 11/9/2011

Figure 3.
Trees Surveyed within the Esver Property

Map Features

- Site Boundary
- Surveyed Tree
- Trees with Aggregate Trunks Not Regulated under City of Antioch Municipal Code



Base and aerial data provided by BART staff.

Scale in Feet

0 100

1 " = 100 '

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
KOrtega

Location: N:\2011\2011-129 eBart\MAPS\Vegetation\Oak Survey\ESverProp_Oak.mxd (11/9/2011)

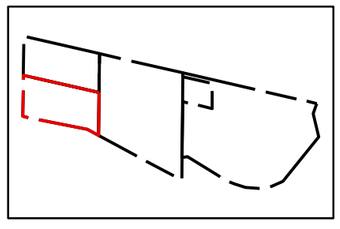
2011-129 eBART Hillcrest Maintenance Facility Site

Map Date: 11/9/2011

Figure 4.
Trees Surveyed within the Duarte Property

Map Features

- Site Boundary
- Surveyed Tree
- Trees with Aggregate Trunks Not Regulated under City of Antioch Municipal Code



Base and aerial data provided by BART staff.

Scale in Feet

0 100

1 " = 100 '

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
KOrtega

Location: N:\2011\2011-129 eBart\MAPS\Vegetation\Oak Survey\DuarteProp_Oak.mxd (_11/9/2011)

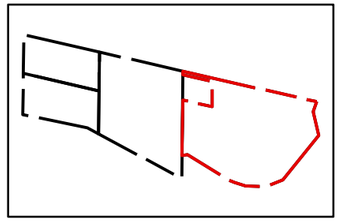
2011-129 eBART Hillcrest Maintenance Facility Site

Map Date: 11/9/2011

Figure 5.
Trees Surveyed within the Project Footprint Area of the FKP Property

Map Features

- Survey Boundary
- Surveyed Tree
- Trees with Aggregate Trunks Not Regulated under City of Antioch Municipal Code



Base and aerial data provided by BART staff.

Scale in Feet

0 100

1 " = 100 '

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
KOrtega

Location: N:\2011\2011-129 eBart\MAPS\Vegetation\Oak Survey\FKPProp_Oak.mxd (11/9/2011)

2011-129 eBART Hillcrest Maintenance Facility Site

Map Date: 11/9/2011

ATTACHMENT A

eBART Parking Lot and Maintenance Facility Site Arborist Survey Data

ARBORIST SURVEY FOR eBART HILLCREST MAINTENANCE FACILITY SITE
COMBINED AREAS

Tree Nbr	Scientific Name	Common Name	DBH	Nbr of Trunks	DBH of Trunks	Approx. Dripline	Structure	Health	Structure/Health Comments	Landmark, Mature, or Indigenous*	Survey Comments
401	*Juglans regia*	English walnut	0	2	22.9, 14.5	25	Fair	Fair			
402	*Ailanthus altissima*	Tree of heaven	12.4	1		0	Poor	Fair			
403	*Ailanthus altissima*	Tree of heaven	12.4	1		15	Poor	Fair			
404	*Ailanthus altissima*	Tree of heaven	12.6	1		10	Poor	Poor			
405	*Juglans californica*	Black walnut	14.3	1		18	Poor	Fair			
406	*Juglans californica*	Black walnut	11.5	3	11.5, 8.1, 3.1	10	Poor	Poor	Very poor		
407	*Ailanthus altissima*	Tree of heaven	0	2	8.5, 7.1	10	Poor	Poor			Removed from survey **
408	*Ailanthus altissima*	Tree of heaven	0	2	7.7, 8.1	10	Poor	Poor	Not GPS'd; no satellite coverage		Removed from survey **
409	*Ailanthus altissima*	Tree of heaven	0	2	9.8, 6.6	10	Poor	Poor	Very poor		Removed from survey **
410	*Ailanthus altissima*	Tree of heaven	12.2	1		0	Poor	Poor	Very poor; 10 ft from GPS pt due east along		
411	*Schinus molle*	Peruvian pepper tree	73.5	1		25	Poor	Fair		X	Landmark Tree
412	*Ailanthus altissima*	Tree of heaven	0	3	7.2, 6.7, 5.8	0	Poor	Good			Removed from survey **
413	*Populus nigra*	Lombardy poplar	0	3	5.4, 4.2, 4.4	8	Poor	Poor			Removed from survey **
414	*Prunus dulcis*	Almond	13.9	1		15	Poor	Poor	Root damage		
415	*Quercus agrifolia*	Coast Live Oak	0	2	7.6, 8.5	7	Poor	Fair	Inclusive bark, vertical V at base of		Removed from survey **
416	*Ulmus parvifolia*	Chinese elm	12.8	1		12	Fair	Good	Located along drive		
417	*Fraxinus velutina* 'Modesto'	Modesto Ash	11.3	1		0	Poor	Poor	Has scale		

ARBORIST SURVEY FOR eBART HILLCREST MAINTENANCE FACILITY SITE
COMBINED AREAS

Tree Nbr	Scientific Name	Common Name	DBH	Nbr of Trunks	DBH of Trunks	Approx. Dripline	Structure	Health	Structure/Health Comments	Landmark, Mature, or Indigenous*	Survey Comments
418	*Fraxinus velutina* 'Modesto'	Modesto Ash	27.1	1		15	Poor	Poor	7 ivy stems each approx 1-1/4" DBH around trunk; ivy choked; 15 ft toward drive from GPS point	X	Mature Tree
419	*Eucalyptus rudis*	Flooded gum	14.5	1		12	Poor	Poor	1 branch broken off		
420	*Prunus dulcis*	Almond	0	2	5.8, 4.7	10	Poor	Poor	Structure very poor		Removed from survey **
422	*Prunus dulcis*	Almond	0	3	5.8, 5.3, 10.3	10	Poor	Poor	Different variety of almond		
423	*Eucalyptus rudis*	Flooded gum	25.1	1		20	Poor	Fair	Leaning heavily		
424	*Prunus armeniaca*	Apricot	0	2	6.8, 5.1	8	Poor	Poor			Removed from survey **
425	*Prunus dulcis*	Almond	0	2	6.2, 6.0	5	Poor	Poor	Almost dead		Removed from survey **
426	*Populus nigra*	Lombardy poplar	0	1	11.1, 12.3, 7.7	10	Poor	Poor	Severe pruning damage; aphid infected		
427	*Eucalyptus rudis*	Flooded gum	15.1	1		0	Poor	Fair	Leans heavily		
428	*Eucalyptus rudis*	Flooded gum	45	1		0	Poor	Fair	Leans heavily	X	Mature Tree
429	*Eucalyptus tereticornis*	Forest red gum	38.7	1		25	Poor	Poor	Dead branches at top	X	Mature Tree
430	*Eucalyptus tereticornis*	Forest red gum	42.8	1		35	Poor	Poor	Leans heavily	X	Mature Tree
431	*Ailanthus altissima*	Tree of heaven	0	2	13.5, 9.6	12	Poor	Fair			
432	*Ailanthus altissima*	Tree of heaven	12.2	1		0	Poor	Poor	Large wound in trunk		
433	*Ailanthus altissima*	Tree of heaven	0	5	9.8, 5.0, 9.2, 9.3, 5.9	20	Poor	Poor	Damaged trunk		Removed from survey **
434	*Ailanthus altissima*	Tree of heaven	0	3	9.3, 5.2, 12.8	0	Poor	Poor	Large wound trunk		

ARBORIST SURVEY FOR eBART HILLCREST MAINTENANCE FACILITY SITE
COMBINED AREAS

Tree Nbr	Scientific Name	Common Name	DBH	Nbr of Trunks	DBH of Trunks	Approx. Dripline	Structure	Health	Structure/Health Comments	Landmark, Mature, or Indigenous*	Survey Comments
435	*Ailanthus altissima*	Tree of heaven	0	2	5.8, 6.6	12	Poor	Poor	Wound in trunk; dead stem		Removed from survey **
436	*Ailanthus altissima*	Tree of heaven	0	2	12.3, 7.3	20	Poor	Poor	Large trunk wound		
437	*Ailanthus altissima*	Tree of heaven	0	2	7.0, 6.2	0	Poor	Poor	Flowing sap on trunk		Removed from survey **
438	*Ailanthus altissima*	Tree of heaven	0	2	7.6, 4.2	25	Poor	Poor	Horizontal branch at base		Removed from survey **
439	*Ailanthus altissima*	Tree of heaven	0	2	7.3, 5.6	10	Poor	Poor	Dead branches; flowing sap		Removed from survey **
440	*Ailanthus altissima*	Tree of heaven	14.6	1		0	Poor	Poor	Large wounds in trunk		
441	*Ailanthus altissima*	Tree of heaven	0	2	5.2, 7.4	0	Poor	Poor	Large wound in trunk		Removed from survey **
442	*Juglans regia*	English walnut	0	4	2.2, 3.7, 2.7, 2.9	7	Poor	Poor	Rootstock, main stem dead, splits in rootstock trunks		Removed from survey **
41 TREES											

*Established Mature, Indigenous, and/or Landmark Tree, as defined and protected by the City of Antioch

** Multi trunked tree removed from survey, since no single trunk ≥ 10 inches DBH.

Note: Tree tag 421 lost/never utilized.

ARBORIST SURVEY FOR eBART HILLCREST MAINTENANCE FACILITY SITE
EASEMENT ON ANTIOCH PAVING PROPERTY

Tree Number	Scientific Name	Common Name	DBH (in inches)	Nbr of Trunks	DBH of Trunks	Approx. Dripline	Structure	Health	Structure/Health Comments	Landmark, Mature, or Indigenous*	Survey Comments
403	*Ailanthus altissima*	Tree of heaven	12.4	1		15	Poor	Fair			
404	*Ailanthus altissima*	Tree of heaven	12.6	1		10	Poor	Poor			
410	*Ailanthus altissima*	Tree of heaven	12.2	1		0	Poor	Poor	Very poor; 10 ft from GPS pt due east along fence		
	Total *Ailanthus* (3)		**37.2**								
405	*Juglans californica*	Black walnut	14.3	1		18	Poor	Fair			
406	*Juglans californica*	Black walnut	22.7	3	11.5, 8.1, 3.1	10	Poor	Poor	Very poor		
	Total *J. californica* (2)		**37.0**								
401	*Juglans regia*	English walnut	37.4	2	22.9, 14.5	25	Fair	Fair			
411	*Schinus molle*	Peruvian pepper tree	73.5	1		25	Poor	Fair		X	Landmark Tree
7 TREES			**185.1**								

*Established Mature, Indigenous, and/or Landmark Tree, as defined and protected by the City of Antioch

ARBORIST SURVEY FOR eBART HILLCREST MAINTENANCE FACILITY SITE
ESVER PROPERTY

Tree Nbr	Scientific Name	Common Name	DBH (in inches)	Nbr of Trunks	DBH of Trunks	Approx. Dripline	Structure	Health	Structure/Health Comments	Landmark, Mature, or Indigenous*	Survey Comments
419	*Eucalyptus rudis*	Flooded gum	14.5	1		12	Poor	Poor	1 branch broken off		
423	*Eucalyptus rudis*	Flooded gum	25.1	1		20	Poor	Fair	Leaning heavily		
427	*Eucalyptus rudis*	Flooded gum	15.1	1		0	Poor	Fair	Leaning heavily		
428	*Eucalyptus rudis*	Flooded gum	45	1		0	Poor	Fair	Leaning heavily	X	Mature Tree
	Total *E. rudis* (4)		**99.7**								
429	*Eucalyptus tereticornis*	Forest red gum	38.7	1		25	Poor	Poor	Dead branches at top	X	Mature Tree
430	*Eucalyptus tereticornis*	Forest red gum	42.8	1		35	Poor	Poor	Leaning heavily	X	Mature Tree
	Total *E. terreticornis* (2)		**81.5**								
417	*Fraxinus velutina 'Modesto'*	Modesto Ash	11.3	1		0	Poor	Poor	Has scale		
418	*Fraxinus velutina 'Modesto'*	Modesto Ash	27.1	1		15	Poor	Poor	7 ivy stems each approx 1-1/4" DBH; ivy choked; 15 ft toward drive from GPS point	X	Mature Tree
	Total *F. velutina* (2)		**38.4**								
426	*Populus nigra*	Lombardy poplar	31.1	3	11.1, 12.3, 7.7	10	Poor	Poor	Severe pruning damage; aphid infected		
422	*Prunus dulcis*	Almond	21.4	3	5.8, 5.3, 10.3	10	Poor	Poor	Different variety of almond		
414	*Prunus dulcis*	Almond	13.9	1		15	Poor	Poor	Root damage		
	Total *P. dulcis* (2)		**35.3**								
416	*Ulmus parvifolia*	Chinese elm	12.8	1		12	Fair	Good	In residence drive		
	12 TREES		**298.8**								

*Established Mature, Indigenous, and/or Landmark Tree, as defined and protected by the City of Antioch

ARBORIST SURVEY FOR eBART HILLCREST MAINTENANCE FACILITY SITE
DUARTE PROPERTY

Tree Number	Scientific Name	Common Name	DBH (in inches)	Nbr of Trunks	DBH of Trunks	Approx. Dripline	Structure	Health	Structure/Health Comments	Landmark, Mature, or Indigenous*	Survey Comments
431	*Ailanthus altissima*	Tree of heaven	23.1	2	13.5, 9.6	12	Poor	Fair			
432	*Ailanthus altissima*	Tree of heaven	12.2	1		0	Poor	Poor	Large wound in trunk		
434	*Ailanthus altissima*	Tree of heaven	27.3	3	9.3, 5.2, 12.8	0	Poor	Poor	Wound in trunk, dead stem		
436	*Ailanthus altissima*	Tree of heaven	19.6	2	12.3, 7.3	20	Poor	Poor	Large trunk wound		
440	*Ailanthus altissima*	Tree of heaven	14.6	1		0	Poor	Poor	Large wounds in trunk		
5 TREES	**Total *A. atissima* (5)**		**96.8**								

*Established Mature, Indigenous, and/or Landmark Tree, as defined and protected by the City of Antioch

ARBORIST SURVEY FOR eBART HILLCREST MAINTENANCE FACILITY SITE
PROJECT FOOTPRINT AREA WITHIN THE FKP, INC. PROPERTY

Tree Number	Scientific Name	Common Name	DBH (in inches)	Nbr of Trunks	DBH of Trunks	Approx. Dripline	Structure	Health	Structure/Health Comments	Landmark, Mature, or Indigenous*	Survey Comments
402	*Ailanthus altissima*	Tree of heaven	12.4	1		0	Poor	Fair			
1 TREE			**12.4**								

*Established Mature, Indigenous, and/or Landmark Tree, as defined and protected by the City of Antioch

Appendix H

BART Letter to Conservancy with
Slope Easement Deeds

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT
300 Lakeside Drive, P.O. Box 12688
Oakland, CA 94604-2688
(510) 464-6000

2012

BTOT-0114

January 5, 2012

Mr. John Kopchik
Community Development Department, Administration Bldg
651 Pine Street, 4th Floor
Martinez, CA 94553-0095

Subject: eBART ECCC/HCP Application, Phase 2

Reference: FKP, Inc. Property Quit Claim and Slope Protection

Dear John:

This letter is in response to your request to describe BART's intentions for the 2.22-acre portion of the knoll on the east side of the maintenance facility related to future development and erosion control. The 2.22-acre portion of the site is illustrated in appraisal map V006 (attached) as parcel P-5060-2B.

1. The 2.22 acres under discussion is part of a larger 3.60-acre knoll that will be partially excavated to create a level grade for the maintenance complex and provide fill for the elevated parking lot. BART is buying the right to grade in the 2.22-acre area as evidenced in the draft deed for the slope easement (attached). The excavation would leave a stable, finished grade not to exceed 3:1 (horizontal to vertical). The 2.22 acres is not needed for the operation or maintenance of the eBART project, but would be replanted and become part of a slope easement. Therefore, it should be eligible for a lower Conservancy development fee as 'temporarily disturbed" land rather than "permanently disturbed" land. (The permanent disturbance will be 37.9 acres.)

2. BART will only temporarily disturb the grade in this area, will hydroseed the area as set forth in the previously provided hydroseed specification, and will conduct no further disturbance of the area.

3. The landowner (FKP, Inc.) will retain the right to develop the 2.22 acres in the future. If FKP, Inc. wants to develop the 2.22 acres of slope easement, BART would quit claim it back to them with no money exchanged.

4. BART understands that any future development of the area, including construction of a retaining wall by the owner, will not be covered in BART's requested authorization for take under the HCP/NCCP and will make that clear to the owner.

Thank you for your attention to this. If you have any questions, please contact Wayne Lind at 510 287-4731.

Sincerely,

Ric Rattray
Group Manager, eBART Project
BART Transit System Development

Attachments: Appraisal Map V006
Slope Easement Deed

cc: Mark Dana
Wayne Lind
Don Dean
File No. 2.3

RECORDING REQUESTED BY AND
WHEN RECORDED MAIL TO:

SAN FRANCISCO BAY AREA
RAPID TRANSIT DISTRICT
P.O. Box 12688
Oakland, CA 94604-2688
Attn: Manager, Real Estate and Property
Development Dept.

SPACE ABOVE THIS LINE FOR RECORDER'S USE

The undersigned grantee hereby declares: This instrument is exempt from Recording Fees (Govt. Code §27383) and from Documentary Transfer Tax (Rev. and Taxation Code §11922)

APN: 052-052-018 (a portion of)

P-5060-2A & P-5060-2B

SLOPE EASEMENT DEED

For valuable consideration, **FKP, Inc.**, a Delaware corporation, hereinafter called GRANTOR, does hereby grant to the **San Francisco Bay Area Rapid Transit District**, a rapid transit district, its agents, consultants, contractors, affiliates, successors, and assigns, hereinafter called GRANTEE, a permanent, non-exclusive easement for grade and slope purposes, hereinafter called SLOPE EASEMENT, including related construction, inspection, maintenance, reparation, removal, reconstruction and operation of said grade and slope and other appurtenant facilities and infrastructure necessary for the slope easement area adjoining Grantee's transit facilities and infrastructure, hereinafter collectively called SLOPE EASEMENT AREA, upon, over, under, and across the Grantor's property located within that certain real property lying within the City of Antioch, County of Contra Costa, State of California, said Slope Easements being more particularly described as follows:

PARCEL 1: SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT PARCEL NO. P-5060-2A as described in the legal description attached hereto as Exhibit "A" and made a part hereof; and

PARCEL 2: SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT PARCEL NO. P-5060-2B as described in the legal description attached hereto as Exhibit "B" and made a part hereof.

Grantor reserves the right to construct a retaining wall, or use other methods to provide structural support to and maintain the slope for the protection of Grantee's facilities and infrastructure adjoining, along and within the Slope Easement Area. Grantor may develop and construct improvements within the slope easement area only if Grantor (1) seeks and obtains written review and approval of Grantee of construction plans for all improvements contemplated for the Slope Easement Area; (2) seeks and obtains

written approval before entering or using construction equipment in said Slope Easement Area; and (3) refrains from constructing improvements in the Slope Easement Area that will damage or threaten to damage Grantee's facilities and infrastructure within the Slope Easement Area. Grantee may at its option quitclaim to Grantor that portion of the Slope Easement containing Grantor's improvements lying within the Slope Easement Area.

Grantee agrees that if a portion of Slope Easement Area is reconstructed, used and/or dedicated as a public way, only that portion of the Slope Easement to be used as a public way shall automatically terminate.

Grantor, its successors or assigns, shall not interfere with or construct permanent structures on said easements or act in such a way as to endanger the Slope Easement Area.

IN WITNESS WHEREOF,

FKP, Inc., a Delaware corporation

By: _____ Date: _____
Charles Wall

By: _____ Date: _____
Robert G. Brosamer

P-5020-2A & P-5020-2B

CERTIFICATE OF ACCEPTANCE, GOVERNMENT CODE, SEC. 27281

This is to certify that the interest in real property conveyed by the foregoing deed or grant to the San Francisco Bay Area Rapid Transit District is hereby accepted by the undersigned on behalf of the San Francisco Bay Area Rapid Transit District pursuant to authority conferred by resolution of the Board of Directors of the San Francisco Bay Area Rapid Transit District entitled "In The Matter of Authorizing Acceptance of Deeds and Grants," bearing No. 291, adopted on October 24, 1963, and the grantee consents to recordation thereof.

Dated this _____ day of _____, 20__

Recommended for Acceptance:

By: _____

Name: _____

Accepted:
San Francisco Bay Area Rapid Transit District

By: _____
Jeffrey P. Ordway, Manager
Real Estate and Property Development Department

LEGAL DESCRIPTION
CITY OF ANTIOCH
COUNTY OF CONTRA COSTA
STATE OF CALIFORNIA
APN 052-052-018
AUGUST 26, 2011

REAL PROPERTY IN THE CITY OF ANTIOCH, COUNTY OF CONTRA COSTA, STATE OF CALIFORNIA, A PORTION OF THE NORTHWEST ONE-QUARTER OF SECTION 28, T.2N., R.2E., M.D.B.&M., BEING A PORTIONS THAT PARCEL OF LAND DESCRIBED AS "PARCEL SEVEN" IN THE QUITCLAIM DEED RECORDED DECEMBER 26, 1995 AS DOCUMENT NO. 95-223539, OFFICIAL RECORDS OF THE CONTRA COSTA COUNTY, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

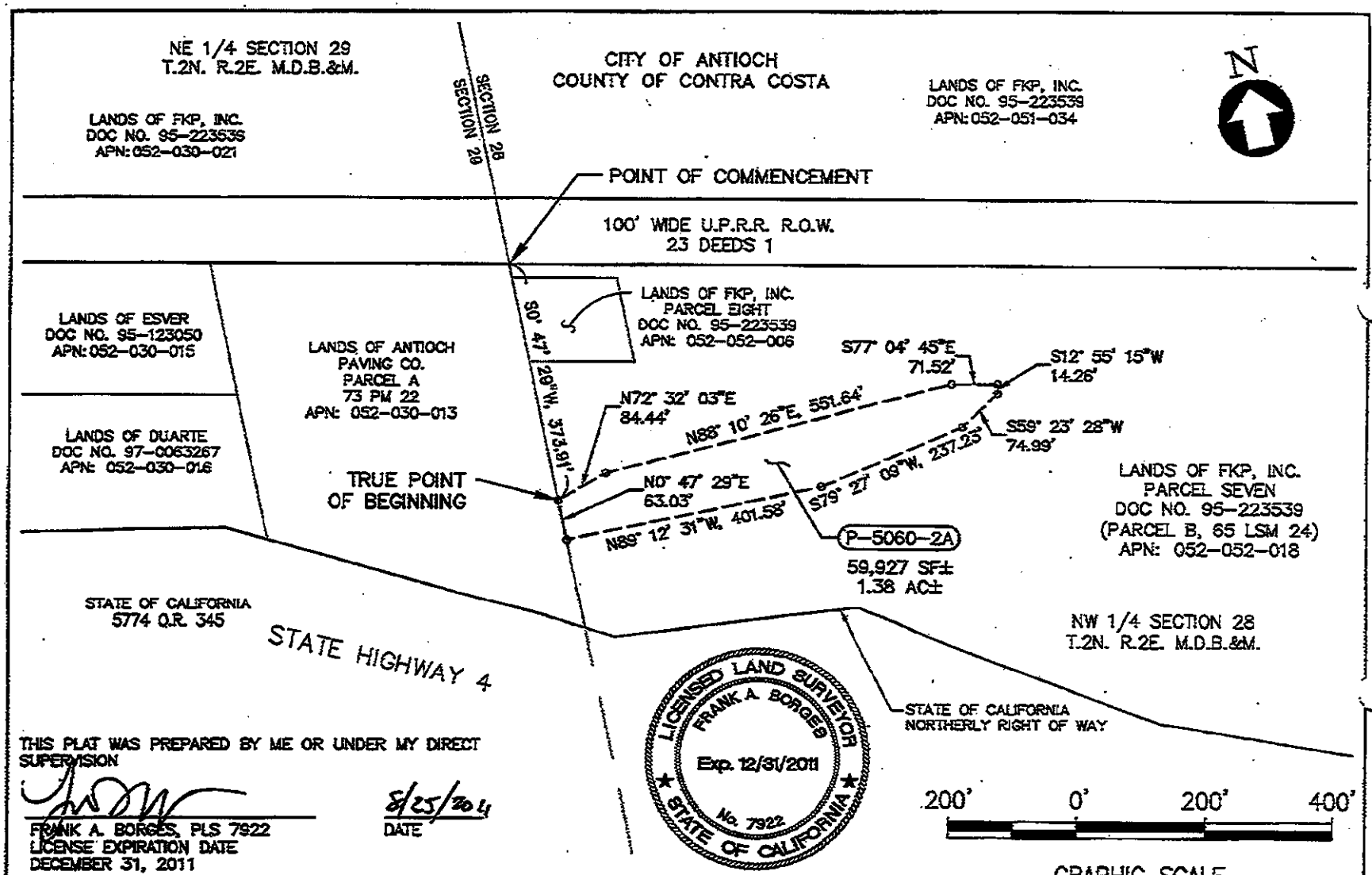
COMMENCING AT THE INTERSECTION OF THE WESTERLY LINE OF SAID SECTION 28 AND THE SOUTHERLY RIGHT OF WAY LINE OF THE UNION PACIFIC RAILROAD COMPANY DESCRIBED IN THE DEED RECORDED JANUARY 30, 1872, IN BOOK 23 OF DEEDS AT PAGE 1, OFFICIAL RECORDS OF CONTRA COSTA COUNTY, SAID WESTERLY LINE OF SECTION 28 BEING THE WESTERLY LINE OF SAID PARCEL SEVEN (95-223539); THENCE ALONG SAID WESTERLY SECTION LINE SOUTH 0° 47' 29" WEST 373.91 FEET TO **THE TRUE POINT OF BEGINNING;** THENCE THROUGH THE INTERIOR OF SAID PARCEL SEVEN (95-223539) THE FOLLOWING SEVEN (7) COURSES: 1) NORTH 72° 32' 03" EAST 84.44 FEET; 2) NORTH 88° 10' 26" EAST 551.64 FEET; 3) SOUTH 77° 04' 45" EAST 71.52 FEET; 4) SOUTH 12° 55' 15" WEST 14.26 FEET; 5) SOUTH 59° 23' 28" WEST 74.99 FEET; 6) SOUTH 79° 27' 09" WEST 237.23 FEET; 7) NORTH 89° 12' 31" WEST 401.58 FEET TO A POINT ON SAID WESTERLY LINE OF SAID PARCEL SEVEN (95-223539) BEING THE WESTERLY LINE OF SAID SECTION 28; THENCE ALONG SAID WESTERLY LINE NORTH 0° 47' 29" EAST 63.03 FEET TO THE **TRUE POINT OF BEGINNING.**

CONTAINING AN AREA OF 59,927 SQUARE FEET OF LAND (1.38 ACRES), MORE OR LESS.

A PLAT MAP SHOWING THE ABOVE DESCRIBED AREA IS ATTACHED HERETO AND MADE A PART HEREOF.

THE BEARINGS AND DISTANCES FOR THE ABOVE DESCRIPTION ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM OF 1983, ZONE 3, EPOCH 2004.0. MULTIPLY DISTANCES BY 1.0000605 TO OBTAIN GROUND DISTANCES.

8/25/2011
FRANK A. BORGES, PLS 7922 DATE
EXPIRATION DATE: DECEMBER 31, 2011



THIS PLAT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION

FRANK A. BORGES, PLS 7922
LICENSE EXPIRATION DATE
DECEMBER 31, 2011

8/25/2011
DATE

BEARINGS AND DISTANCES ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM OF 1983, ZONE 3, EPOCH 2004.0; MULTIPLY DISTANCES SHOWN BY 1.0000605 TO OBTAIN GROUND LEVEL DISTANCES. ALL DISTANCES ARE IN FEET AND/OR DECIMALS THEREOF, EXCEPT AS NOTED.

BART

SCALE: 1"=200' | DATE: 8/26/11

PLAT MAP

CO. CCC	RTE. ANTIOCH	

DR. NO P-5060-2A (SHEET 1 OF 1)

LEGAL DESCRIPTION
CITY OF ANTIOCH
COUNTY OF CONTRA COSTA
STATE OF CALIFORNIA
APN 052-052-018
AUGUST 26, 2011

REAL PROPERTY IN THE CITY OF ANTIOCH, COUNTY OF CONTRA COSTA, STATE OF CALIFORNIA, A PORTION OF THE NORTHWEST ONE-QUARTER OF SECTION 28, T.2N., R.2E., M.D.B.&M., BEING A PORTIONS THAT PARCEL OF LAND DESCRIBED AS "PARCEL SEVEN" IN THE QUITCLAIM DEED RECORDED DECEMBER 26, 1995 AS DOCUMENT NO. 95-223539, OFFICIAL RECORDS OF THE CONTRA COSTA COUNTY, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE INTERSECTION OF THE WESTERLY LINE OF SAID SECTION 28 AND THE SOUTHERLY RIGHT OF WAY LINE OF THE UNION PACIFIC RAILROAD COMPANY AS DESCRIBED IN A DEED RECORDED JANUARY 30, 1872, IN BOOK 23 OF DEEDS AT PAGE 1, OFFICIAL RECORDS OF CONTRA COSTA COUNTY, SAID WESTERLY LINE OF SECTION 28 BEING THE WESTERLY LINE OF SAID PARCEL SEVEN (95-223539); THENCE ALONG SAID WESTERLY SECTION LINE SOUTH 0° 47' 29" WEST 436.94 FEET TO THE TRUE POINT OF BEGINNING; THENCE THROUGH THE INTERIOR OF SAID PARCEL SEVEN (95-223539) THE FOLLOWING ELEVEN (11) COURSES: 1) SOUTH 89° 12' 31" EAST 401.58 FEET; 2) NORTH 79° 27' 09" EAST 237.23 FEET; 3) NORTH 59° 23' 28" EAST 74.99 FEET; 4) NORTH 12° 55' 15" EAST 140.72 FEET; 5) SOUTH 77° 04' 45" EAST 9.78 FEET; 6) SOUTH 13° 32' 00" WEST 16.63 FEET; 7) SOUTH 04° 58' 00" EAST 108.90 FEET; 8) SOUTH 39° 05' 58" WEST 235.69 FEET TO A POINT OF CURVATURE OF A TANGENT CURVE TO THE RIGHT; 9) SOUTHWESTERLY ALONG SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 270.00 FEET, THROUGH A CENTRAL ANGLE OF 82° 14' 29", AN ARC DISTANCE OF 387.55 FEET; 10) NORTH 58° 39' 33" WEST 167.15 FEET; 11) NORTH 72° 25' 48" WEST 110.10 FEET TO A POINT ON SAID WESTERLY LINE OF SAID PARCEL SEVEN (95-223539) BEING THE WESTERLY LINE OF SAID SECTION 28; THENCE ALONG SAID WESTERLY LINE NORTH 0° 47' 29" EAST 36.70 FEET TO THE TRUE POINT OF BEGINNING.

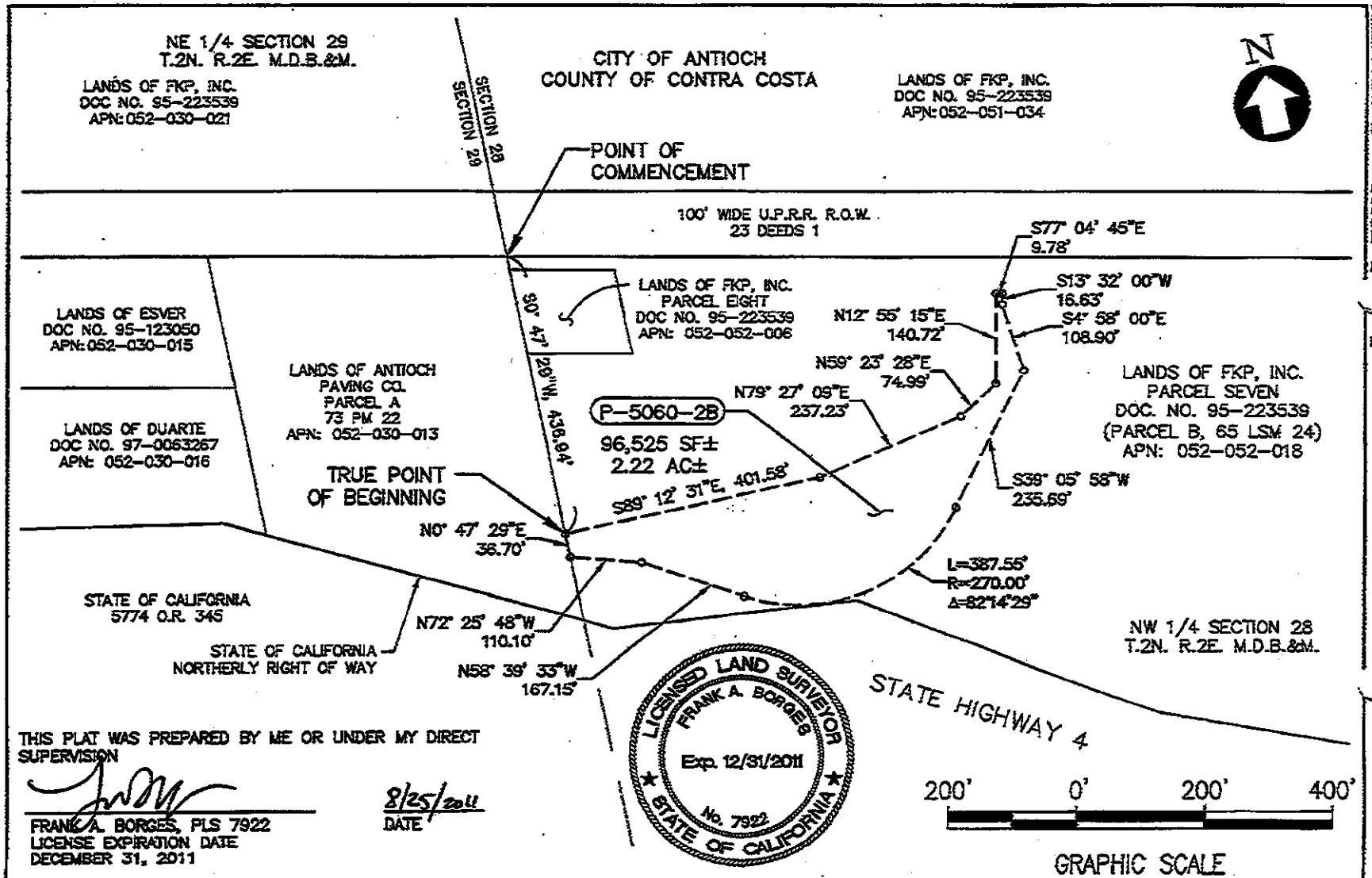
CONTAINING AN AREA OF 96,525 SQUARE FEET OF LAND (2.22 ACRES), MORE OR LESS.

A PLAT MAP SHOWING THE ABOVE DESCRIBED AREA IS ATTACHED HERETO AND MADE A PART HEREOF.

THE BEARINGS AND DISTANCES FOR THE ABOVE DESCRIPTION ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM OF 1983, ZONE 3, EPOCH 2004.0. MULTIPLY DISTANCES BY 1.0000605 TO OBTAIN GROUND DISTANCES.

8/25/2011
FRANK A. BORGES, PLS 7922 DATE
EXPIRATION DATE: DECEMBER 31, 2011

P-5060-2B



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FRANK A. BORGES, PLS 7922
LICENSE EXPIRATION DATE
DECEMBER 31, 2011

8/25/2011
DATE

BEARINGS AND DISTANCES ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM OF 1983, ZONE 3, EPOCH 2004.0; MULTIPLY DISTANCES SHOWN BY 1.0000605 TO OBTAIN GROUND LEVEL DISTANCES. ALL DISTANCES ARE IN FEET AND/OR DECIMALS THEREOF, EXCEPT AS NOTED.

BART

SCALE: 1"=200' | DATE: 8/26/11

PLAT MAP

CO. CCC	RTE. ANTIOCH	

DR. NO. P-5060-2B (SHEET 1 OF 1)