ADDENDUM

TO THE

BOTANICAL ASSESSMENT

FOR THE

INDIAN VALLEY PROPERTY
TOWN OF MORAGA, CONTRA COSTA COUNTY

Prepared for:

BRUZZONE FAMILY TRUST
P.O. Box 97
Moraga, California 94556

Prepared by:

MARYLEE GUINON LLC AND OLBERDING ENVIRONMENTAL, INC.
354 Bohemian Highway
Freestone, California 95472
Contact: Marylee Guinon
maryleeguinon@gmail.com
(925) 260-4346

June 2015

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ATTACHMENTS

ATTACHMENT 1. FIGURES

LIST OF ACRONYMS AND DEFINITIONS

2003 Study Area	land that was surveyed in 2003 by Sycamore Associates LLC
2014 Study Area	land that was surveyed in 2014
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDP	Conceptual Development Plan
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
EBMUD	East Bay Municipal Utility District
ESA	Endangered Species Act
MBTA	Migratory Bird Treaty Act
MOSO	Moraga Open Space Ordinance
NMFS	National Marine Fisheries Service
NPPA	Native Plant Protection Act
RWQCB	Regional Water Quality Control Board
Sycamore	Sycamore Associates LLC
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 EXECUTIVE SUMMARY

The purpose of this report is to provide an update and augmentation to the report titled, *Botanical Assessment of the Indian Valley Property, Moraga, Contra Costa County, California*, prepared by Sycamore Associates LLC (Sycamore) in March 2004 (Sycamore 2004).

Based on a reconnaissance-level botanical survey conducted by Sycamore on October 28, 2002, the Indian Valley Property (Study Area) was found to have the potential for occurrence of special-status plant species. Based on reported occurrences within the regional vicinity and the presence of potentially suitable habitat on site, Sycamore recommended performing focused rare plant surveys.

Sycamore conducted floristic surveys of the Study Area in March, April, May, June, July and August 2003 to describe the upland and wetland vegetation communities, identify and record all plant species, and conduct seasonal focused rare plant surveys according to the protocol established by the California Department of Fish and Game (CDFG) and U.S. Fish and Wildlife Service (USFWS).

During comprehensive floristic surveys of the Study Area commencing in March 2003 and completed in August 2003, the following three special-status plant species were observed along Indian Ridge and upper slopes of the site; no other special-status plant species were observed or expected (Sycamore 2004):

- Bent-flowered fiddleneck (*Amsinckia lunaris*), California Native Plant Society (CNPS) List 1B.2[1],
- Robust monardella (*Monardella villosa* ssp. *globosa*), CNPS List 1B.2, and
- Oakland star-tulip (*Calochortus umbellatus*), CNPS List 4.2[2].

The Property Owner is considering development of the site and requested that the Sycamore report be evaluated to determine what updates were needed to bring the study up to current standards. This Addendum evaluates the adequacy of the previous report, identifies potential impacts, and recommends mitigation measures that should be implemented to reduce potential impacts to a less-than-significant level. It should be noted that any development of the site would

[1] Plants with a California Rare Plant Rank of 1B are rare throughout their range with the majority of them endemic to California. All of the plants constituting California Rare Plant Rank 1B meet the definitions of Secs. 2062 and 2067 (California Endangered Species Act) of the California Fish and Game Code and are considered eligible for state listing. Plants with a 1B rank are to be fully considered during preparation of environmental documents relating to the California Environmental Quality Act (CEQA).

[2] Plants with a California Rare Plant Rank of 4 are of limited distribution or infrequent throughout a broader area in California. They are uncommon and many of them are significant locally. Some of the plants constituting California Rare Plant Rank 4 meet the definitions of Secs. 2062 and 2067 (California Endangered Species Act) of the California Fish and Game Code, and few, if any, are eligible for state listing. Nevertheless, many of them are significant locally, and should be evaluated for consideration during preparation of environmental documents relating to CEQA.

be designed to protect the physical and biological resources of the site including Indian Creek and its associated riparian corridor, the steep slopes and ridgeline, wetlands, drainages and other sensitive natural communities, and biological movement corridors. The known locations of special-status plants would be protected by the proposed project (Project), since the special-status plants are located at the higher elevations of the site and along Indian Ridge.

It also should be noted that the following terminology is used in this report;

- 2003 Study Area is the approximate 400 acres studied in the Sycamore report (2004).

- 2014 Study Area includes the approximate 400 acres studied in the Sycamore report plus an additional area to the east, including a portion of the Canyon Road right-of-way that may be impacted due to infrastructure improvements required to support development of the site.

- The Project Site consists of approximately 141 acres with an additional 2.3 acres along Canyon Road.

This Addendum includes a review of the previous report and other pertinent literature, an updated California Natural Diversity Data Base (CNDDB) search (California Department of Fish and Wildlife 2014), and the results of reconnaissance-level surveys conducted by qualified biologists in 2014.

A residential development Project would include grading, road, utility and infrastructure construction and development of homes, public trails, storm water detention basins, etc. Construction would result in the conversion of some of the undeveloped land to developed uses. Approximately 62.9 acres of habitat would be permanently impacted, and an additional 59.5 acres would be temporarily impacted. Potential impacts resulting from the proposed development include possible loss of individuals of special-status plant species. It should be noted, however, that special-status plant species detected on site during focused protocol-level surveys conducted in 2003 were located along the ridgeline and steeper slopes that are not proposed for development.

Mitigation recommended to reduce potential impacts to special-status plants to a less-than-significant level is identified below.

- Conduct pre-construction botanical surveys for listed plant species within 18 months prior to any ground disturbing activities. If state- or federally-listed plant species are detected, consult with the U.S. Fish and Wildlife Service (USFWS) and/or California Department of Fish and Wildlife (CDFW), and develop feasible take avoidance, minimization and mitigation measures that may include restoration of removed populations.

2.0 SUMMARY OF THE 2004 SYCAMORE REPORT

This section summarizes information contained in the *Botanical Assessment of the Indian Valley Property, Moraga, Contra Costa County, California,* report prepared by Sycamore Associates LLC (Sycamore) in March 2004 (Sycamore 2004).

2.1 Introduction

In 2002, two Sycamore botanists conducted a reconnaissance-level survey for the Indian Valley property located within the southwestern limits of the Town of Moraga, in southwestern Contra Costa County (Attachment 1, Figure 1; all figures are located in Attachment 1). The reconnaissance survey was intended only as an initial evaluation of on-site habitat types and an assessment of the potential for occurrence of special-status plant and wildlife species. During the initial 2002 site visit, the entire Study Area was traversed on foot and by four-wheel drive vehicle. Following Sycamore recommendations, focused botanical surveys were conducted subsequent to the reconnaissance-level site evaluation.

The Indian Valley property is located within Indian Valley in the Town of Moraga (Figure 2). Indian Creek, a blue-line stream that carries flowing water during most of the year, is the main aquatic feature on site. It flows more or less south a short distance before emptying into San Leandro Creek, immediately north of Upper San Leandro Reservoir. The valley supports an abundance of aquatic features including perennial seeps and springs that feed into the main branch of the creek. Conditions on the property are shown on a 2010 aerial photograph (Figure 3). The site is within the Oakland East quadrangle, Township 1 South, Range 3 West, Sections 13, 14, 23 and 24 and Township 1S, Range 2 West, Section 19 (Figure 4).

The Indian Valley property is located in the southwest corner of the Town of Moraga. The property is located approximately one mile west of downtown Moraga and approximately three-quarters of a mile east of Redwood Regional Park. The site is accessible via Canyon Road. The property is biologically connected to the 241-acre Huckleberry Botanic Regional Preserve, the 660-acre Sibley Volcanic Regional Preserve and several other protected open space lands (Figure 2). Sparse rural residential development in the community of Canyon is located beyond the northwestern boundary. To the east, beyond the crest of Gudde Ridge, dense residential developments associated with Moraga Country Club are present. Watershed lands owned and managed by East Bay Municipal Utility District (EBMUD) for Upper San Leandro Reservoir are present immediately to the south and west.

Based on a review of special-status plant species in Contra Costa County and adjacent Alameda County, and a broad knowledge of the regional flora, Sycamore identified a total of 22 special-status plant species with at least some potential to occur within the region of the 2003 Study Area. These species were considered to be “target species” for the purpose of site-specific focused plant surveys conducted in 2003.

2.2 Study Area Description

The site is located along Indian Creek, a headwater tributary to San Leandro Creek. Topography on site consists of valley bottomlands to steeply sloping hills ranging in elevation between 550 feet to 1,070 feet above mean sea level. The valley supports an abundance of aquatic features

including perennial seeps and springs that contribute flows to Indian Creek. A few seeps and small, ephemeral streams also were present on the eastern flanks of Gudde Ridge above the Moraga Valley. Indian Creek is represented as a dashed "blue-line" on the USGS Oakland East 7.5-minute quadrangle indicating it is an intermittent stream. The creek flows more or less south and off site into San Leandro Creek, just north of Upper San Leandro Reservoir.

A single residence is located at the southwestern portion of the property, with associated outbuildings, livestock corrals and cattle ranching operation. Historically, the site has been used as a walnut orchard and as pastureland for cattle.

2.3 Methods

Two Sycamore botanists conducted floristic surveys of the entire 2003 Study Area over ten days in March, April, May, June, July and August 2003 during all seasons necessary for the detection and proper identification of any potentially occurring special-status plant species. A complete plant species inventory for the 2003 Study Area is presented in Appendix A to the 2004 Sycamore report. Survey methods conformed to California Department of Fish and Game's *Guidelines for Assessing the Effects of Proposed Developments on Rare and Endangered Plants and Plant Communities* (California Department of Fish and Game 2000) as well as the U.S. Fish and Wildlife Service's *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (U.S. Fish and Wildlife Service 1996).

Information on special-status plant species was compiled through a review of the California Natural Diversity Data Base (California Department of Fish and Game 2003a) for the Briones Valley, Walnut Creek, Las Trampas Ridge, and Oakland East 7.5-minute topographic quadrangles, as well as the California Native Plant Society's *Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2001), the California Department of Fish and Game's *Special Vascular Plants, Bryophytes, and Lichens List* (California Department of Fish and Game 2003b), *State and Federally Listed Endangered, Threatened, and Rare Plants of California* (California Department of Fish and Game 2003c), the U.S. Fish and Wildlife Service's *Endangered and Threatened Wildlife and Plants* (1998). Also reviewed were *Status of Rare, Threatened and Endangered Vascular Plants in Alameda and Contra Costa Counties (and Some Adjacent Areas)* (Olson 1994) and *Unusual and Significant Plants of Alameda and Contra Costa Counties* (Lake 2004).

2.4 Vegetation Communities

Vegetation within the Study Area (modified since the 2002–2003 Sycamore surveys) as confirmed by surveys conducted in 2014 is dominated by non-native annual grassland (Figure 5). Other vegetation communities identified on site include coast live oak woodland and isolated oaks, northern coyote brush scrub, undifferentiated scrub, sage scrub, an abandoned orchard with associated ruderal vegetation, Central Coast riparian scrub, and freshwater marsh and seeps. Plant species detected based on surveys conducted from March to August 2003 are listed in Appendix A to the Sycamore botanical report (2004).

Based on site visits conducted in July 2014, minor changes to the vegetation communities and aquatic features were identified and the Study Area was expanded to include a portion of the

Canyon Road right-of-way that may be needed for infrastructure improvements. Updates to the aquatic features include the mapping from a jurisdictional wetland delineation conducted in July 2014.

Non-Native Annual Grassland

Non-native annual grassland is generally found in open areas in valleys and foothills throughout coastal and interior California (Holland 1986). It typically occurs on soils consisting of fine-textured loams or clays that are somewhat poorly drained. This vegetation type is dominated by non-native annual grasses and weedy annual and perennial forbs, primarily of Mediterranean origin, that have replaced native perennial grasslands and scrub as a result of ranching operations. Scattered native wildflower species, representing remnants of the original vegetation may also be common.

Non-native annual grassland on site intergrades freely with northern coyote brush scrub and sage scrub, as well as the ruderal vegetation in the understory of the abandoned orchard. Non-native annual grassland as found on site conforms to the California annual grassland series as described in Sawyer and Keeler-Wolf (1995), and would be classified as an upland following Cowardin, *et al.* (1979).

Central Coast Riparian Scrub

Central coast riparian scrub typically consists of a scrubby streamside, open to impenetrable thickets composed primarily of any of several species of willows. This vegetation community occurs close to river channels and near the coast on fine-grained sand and gravel bars with a high water table. It is distributed along most perennial and many intermittent streams of the South Coast Ranges, from the Bay Area to near Point Conception (Holland 1986). Central Coast riparian scrub is generally regarded as early seral, meaning that it typically precedes the development of other riparian woodland or forest communities in the absence of severe flooding. However, outside of riparian situations, that is, near groundwater seeps, willow-dominated scrub represents a relatively stable vegetation community and is not considered seral.

Central Coast riparian scrub as found on site generally conforms to the arroyo or red willow series as described in Sawyer and Keeler-Wolf (1995), and would be classified as a palustrine shrub-scrub wetland following Cowardin, *et al.* (1979).

Coast Live Oak Woodland

Coast live oak woodland is typically found on north-facing slopes and shaded ravines in the southern and inland portions of the state and on more exposed, mesic sites in the north. This community is dominated by coast live oak (*Quercus agrifolia*), which frequently occurs in pure, dense stands with a closed canopy. Coast live oak woodland is restricted primarily to the coast side of the state and is distributed from Sonoma County to Baja California. It occurs throughout the outer South Coast ranges and coastal slopes of the Transverse and Peninsular ranges, usually below 4,000 feet in elevation.

On site, this vegetation type conforms to the coast live oak series as described by Sawyer and Keeler-Wolf (1995) and would be considered as an upland as classified in Cowardin, *et al.* (1979).

In 2014, biologists included isolated oaks in this vegetation community category, as reflected in the updated vegetation communities map (Figure 5).

Freshwater Marsh and Seeps

Freshwater seeps consist of areas with permanently or seasonally saturated soils, generally lacking appreciable surface flows, and typically supporting few to several perennial and annual herbaceous hydrophytic plant species. Within the 2014 Study Area, most freshwater seeps closely resemble freshwater marshes in terms of species composition, supporting characteristic low, emergent species. On site, these two vegetation community types intergrade. Where small thickets of arroyo willow, red willow, or white alder encroach on the margin of freshwater seeps, this community intergrades with Central Coast riparian scrub.

On site, freshwater seeps and freshwater marshes are located principally along permanently or semi-permanently saturated portions of drainages, often fanning out upon reaching the valley bottom. Many on-site seeps originate high on hillsides where the geologic contact between the Moraga and Orinda formations forces water to the surface.

Most areas of freshwater seep and freshwater marsh found on site do not correspond *per se* to any particular series described by Sawyer and Keeler-Wolf (1995), although some portions would conform to the cattail series. Following Cowardin, *et al,* (1979), these vegetation communities would be classified as palustrine emergent wetlands.

Northern Coyote Brush Scrub

Northern coyote brush scrub is considered a sub-type of northern (Franciscan) coastal scrub. It differs primarily by the dominance of coyote brush (*Baccharis pilularis*). This scrub type consists of low shrubs 1-6 feet tall with a well-developed herbaceous or low woody understory. Vegetative cover is mostly dense with scattered grassy openings. Northern (Franciscan) coastal scrub is best developed on windy, exposed sites with shallow, rocky soils. An increase in soil depth and moisture availability seems to favor dominance by coyote brush. This vegetation community is distributed in patches from southern Oregon to Point Sur, Monterey County (Holland 1986).

Scattered well-developed stands of northern coyote brush scrub are present on both eastern and western slopes of Gudde Ridge on the eastern portion of the site, as well as on the western side of Indian Creek. Elsewhere on site northern coyote brush scrub occurs in small dense patches and is also interspersed throughout other communities often forming an ecotone between non-native annual grassland and coast live oak woodland.

Sage Scrub

Sage scrub consists of a dense to sparse cover of low shrubs up to three feet high. It occurs in inland locations well beyond the coastal fog incursion zone. It is typically found on shallow,

rocky soils on hot southern exposures. This vegetation community is distributed in patches along the Inner Coast Ranges from Mount Diablo in Contra Costa County south to the Cholame Hills in northern San Luis Obispo County (Holland 1996). This shrub canopy typically consists of fewer shrub species than other coastal scrub communities but may exhibit a greater diversity of perennial herbs.

On the steep, southwest facing slopes of Gudde Ridge, northern coyote brush scrub and sage scrub freely intergrade, making their separation as distinct communities impractical. Areas that support northern coyote brush scrub and sage scrub have been mapped as undifferentiated scrub.

Abandoned Orchard and Ruderal Habitat

Ruderal habitat is that from which the native vegetation has been completely removed by grading, cultivation, or other surface disturbances. Such areas, if left undeveloped, may become recolonized by invasive exotic species as well as native species. The native vegetation may ultimately become at least partially restored if the soils are left intact and there is no further disturbance.

Numerous areas on site have been severely disturbed by grading and cultivation activities. Remnant groups of black walnut trees are present in the valley bottom of the property, once a large orchard that has since been abandoned. When the vegetation communities map was updated in 2014, based on the 2014 field surveys, many of the walnut orchard trees had apparently died since the Sycamore mapping effort, and these areas were more accurately described as non-native grassland habitat (Figure 5).

2.5 Special-Status Plants

Special-status plant species considered in the Sycamore botanical (2004) report included those listed as Endangered, Threatened, Rare, or as Candidates for listing by the U.S. Fish and Wildlife Service (USFWS 1998), the California Department of Fish and Game (2003c) and the California Native Plant Society (2001). The CNPS listing served essentially as a list of "candidate" plant species. CNPS List 1B and list 2 species were considered eligible for state listing as Endangered or Threatened under the California Fish and Game Code. CNPS List 3 and List 4 species were considered to be either plants about which more information is needed or are uncommon enough that their status should be regularly monitored.

Based on a review of special-status plant species in Contra Costa County (CDFG 2003a, CNPS 2001, Olson 1994), and a broad knowledge of the regional flora, Sycamore determined that a total of 22 special-status plant species had at least some potential to occur within the region of the 2003 Study Area. These species were considered to be "target species" for the purpose of site-specific focused plant surveys. A summary of the status, habitat affinities, blooming period, and potential for occurrence on site for each of the target plant species is presented in Appendix B to the Sycamore botanical report (2004).

Based on the presence of potentially suitable habitat for a number of these species, focused botanical surveys were conducted on the site during seasons appropriate for the detection of any potentially occurring species. Surveys were commenced in March and completed in August of

2003. During the course of those surveys, no federally- or state-listed Endangered or Threatened plant species were detected within the 2003 Study Area, and none were expected. Populations of three special-status plant species listed by the California Native Plant Society were detected within the 2003 Study Area: bent-flowered fiddleneck (CNPS List 1B), robust monardella (CNPS List 1B), and Oakland star-tulip (CNPS List 4).

None of the remaining target species were determined to have any potential to occur within the 2003 Study Area due to a lack of suitable habitat or the fact that they would have been detectable during the comprehensive focused plant surveys conducted in 2003. No other special-status plant species were detected on site, and none were expected.

2.6 Sensitive Natural Communities

Sensitive natural communities are those that are considered rare in the region, support special-status plant or wildlife species, or receive regulatory protection (*i.e.,* Section 404 of the Clean Water Act and/or Section 1600 of the California Fish and Game Code). In addition, the CNDDB has designated a number of communities as rare.

The 2003 Study Area supported three sensitive natural communities that are regulated by federal, state, county or local legislation and policies: freshwater marsh and seeps, Central Coast riparian scrub and coast live oak woodland. No other sensitive natural communities were present within the 2003 Study Area. The locations of these sensitive natural communities were updated in 2014 to reflect a jurisdictional wetland delineation conducted in 2014, and changes in site conditions, such as the expansion of non-native grassland and mortality of walnut orchard trees (Figure 5).

2.7 Conclusions and Recommendations of the 2004 Sycamore Report

Based on comprehensive focused botanical surveys of the Study Area commencing in March and completed in August 2003, no federally- or state-listed Endangered or Threatened plant species were detected, and none were expected. However, a total of three special-status plant species listed by the California Native Plant Society were detected within the Study Area along the ridgeline and upper slopes during the 2003 botanical surveys: bent-flowered fiddleneck (CNPS List 1B), robust monardella (CNPS List 1B), and Oakland star-tulip (CNPS List 4). Although none of these plants were protected under state or federal law, the sensitivity and significance of these species in the region as recognized by the California Native Plant Society warranted consideration by any lead agency through the California Environmental Quality Act (CEQA) process.

Nineteen additional plant taxa representing regionally uncommon botanical resources were detected on site. The East Bay Chapter of the California Native Plant Society considered these taxa unusual in Alameda and Contra Costa counties. Although not listed by California Native Plant Society on a statewide basis, these botanical resources were regarded as regionally rare or noteworthy.

Three sensitive natural vegetation communities were identified on site: freshwater marsh and seeps, Central Coast riparian scrub, and coast live oak woodland. Portions of each of these communities were expected to fall under the jurisdiction of the U.S. Army Corps of Engineers

(USACE) and/or the California Department of Fish and Game (CDFG) and California Regional Water Quality Control Board (RWQCB) as wetland, waters, or riparian habitats as interpreted under their respective definitions, and therefore would receive regulatory protection under applicable state or federal laws.

During comprehensive floristic surveys of the 2003 Study Area, no other species listed by the California Native Plant Society were located. No other special-status plant taxa or sensitive natural communities were expected to occur on site due to a lack of suitable habitat or the fact that they would have been detectable during the surveys conducted.

3.0 PROJECT DESCRIPTION

3.1 Summary of the Project

The Conceptual Development Plan (CDP) application for the Indian Valley Project proposes 71 single-family homes clustered within a semi-rural setting, along with approximately 1.5 miles of public trails, utility, water quality, storm drainage and landscape improvements (Figure 6). The proposed Project utilizes approximately 141 acres of the approximately 450 acres owned by the Bruzzone Family, located on the north side of Canyon Road in Moraga. It also identifies limited improvements for Canyon Road. The remaining approximately 312 acres of the Bruzzone Family Holdings would continue to be used for agricultural and open space purposes, consistent with applicable provisions of the Moraga Open Space Ordinance of 1986 (MOSO), and are not a part of the CDP application for the Indian Valley Project.

The proposed residential lots range in net area from just over 10,000 square feet to almost 4.7 acres, with an average size of 24,242 square feet. All 71 lots are organized along a central spine roadway ("Indian Creek Way") within the central, lower valley portion of the Project Site where the average predevelopment slope is less than 8 percent. The residential lots, site grading and related improvements are clustered east of the Indian Creek riparian corridor, and substantially below (west of) Indian Ridge. Common areas within the Project Site would be owned and managed by a homeowners association, with responsibility for slope maintenance immediately beyond the private lots assigned to a geological hazard abatement district (or "GHAD"). Impacts to habitat resources within the Project Site would be mitigated in accordance with state and federal resource agency standards. Compensatory habitat mitigation, including protection through recordation of an easement, may be provided on a portion of the remaining Bruzzone Family Holdings directly adjoining the Project Site or an alternative offsite location.

3.2 Constraints-based Design

The Property Owner is proposing development to accommodate traditional detached single-family residences in a semi-rural setting. Working closely with a team of planners, architects, landscape architects, engineers, biologists and resource specialists, the following constraints were identified and used to guide the design of the Project:

- Recognize the physical constraints of the site including steep slopes and areas requiring geotechnical slope stabilization.

- Protect and preserve the high-quality biological resources of the site and, to the maximum extent feasible, avoid and minimize impacts to riparian habitat, oak woodland, wetlands and jurisdictional waters.

- Protect and preserve high-quality open space that may provide potential habitat for special-status plant and wildlife species.

- Protect and preserve high-quality biological movement corridors on the site including Indian Creek, drainages and upper elevations that connect the site to conserved and protected properties to the south, west and Upper San Leandro Reservoir.

- Minimize the visual impacts of any development by preserving and protecting the ridgeline.

- Provide safe and adequate on-site and off-site roadways and public trails.

- Provide emergency access to serve as an evacuation route and emergency vehicle ingress/egress.

- Comply with the Town of Moraga requirements related to development services including water supply, wastewater treatment and disposal, storm drainage design and water quality guidelines.

- Provide single-family housing to help meet Moraga's housing needs.

The constraints-based design results in avoidance and protection of the highest quality biological resources on site. These include the mile-long riparian corridor along Indian Creek, the upper slopes and ridgeline, and many of the drainage corridors originating on the ridge and upper slopes that drain to Indian Creek. These protected resources include regionally significant wildlife corridor connections to open space lands to the west, south and east, and biological corridor connections from the ridgeline to the creek; the known locations of special-status plant species documented during surveys conducted in 2003; and high-quality core habitat for Alameda whipsnake (*Masticophis lateralis euryxanthus*).

4.0 REGULATORY FRAMEWORK

This section explains the regulatory context of the botanical assessment review, including applicable laws and regulations that were applied to the field investigations and analysis of potential Project impacts.

4.1 Federal and California Endangered Species Acts

The federal Endangered Species Act (ESA) of 1973 prohibits federal agencies from authorizing, permitting, or funding any action that would jeopardize the continued existence of a plant or animal species listed or a candidate for listing as Threatened or Endangered under the ESA. If a federal agency is involved with a proposed action or project that may adversely affect a listed plant or animal, that agency must enter into consultation with the USFWS or National Marine

Fisheries Service (NMFS) under Section 7 of the ESA. If a federal agency is not involved with a proposed project or action that may adversely affect a listed plant or animal, the project consults with the USFWS and/or NMFS under Section 10 of the ESA.

The State of California enacted similar laws to the ESA, the California Native Plant Protection Act (NPPA) in 1977 and the California Endangered Species Act (CESA) in 1984. CESA also uses the categories of "threatened" and "endangered" species. The California Department of Fish and Wildlife (CDFW) implements the CESA. During the CEQA process, CDFW is given the opportunity to comment on the potential impacts of a proposed project on plants, wildlife and sensitive natural communities.

Other species included as special-status species include California Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, USFWS Birds of Conservation Concern, and CDFW special-status invertebrates. In addition to regulations for special-status species, most birds, including non-special-status species, are protected under the Migratory Bird Treaty Act (MBTA). Plant species on the California Native Plant Society (CNPS) Rank 1 or 2 are also considered special-status plant species.

If state listed species are found on site, the applicant must obtain an Incidental Take Permit (ITP) from CDFW. Sections 2081(b) and (c) of the CESA allow CDFW to issue an ITP for a State listed threatened and endangered species only if specific criteria are met; the criteria are summarized below and reiterated in Title 14 CCR, Sections 783.4(a) and (b):

1. The authorized take is incidental to an otherwise lawful activity;

2. The impacts of the authorized take are minimized and fully mitigated;

3. The measures required to minimize and fully mitigate the impacts of the authorized take:

    a. are roughly proportional in extent to the impact of the taking on the species,
    b. maintain the applicant's objectives to the greatest extent possible, and
    c. are capable of successful implementation;

4. Adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with and the effectiveness of the measures; and

5. Issuance of the permit will not jeopardize the continued existence of a state-listed species.

The terms and conditions of the ITP are determined by CDFW and must ensure that the issuance criteria in items 1 through 5 above are met.

Based on the comprehensive surveys conducted by Sycamore in 2003, no state- or federally-listed plant species are expected to occur on site.

5.0 TOWN OF MORAGA REGULATORY FRAMEWORK

5.1 Moraga 2002 General Plan

The Town of Moraga 2002 General Plan includes several goals and policies related to the conservation or preservation of biological resources. The 2002 General Plan Diagram designates the lower elevations of the Study Area for residential use. A portion of Indian Creek and the upper elevations along Indian Ridge are designated Open Space or MOSO (Moraga Open Space Ordinance) Open Space. There are no mixed use areas, parks, or community or educational land use designations within the Study Area.

5.2 MOSO Open Space District

The purpose of the MOSO Open Space District is to identify and regulate, when appropriate, lands that are in public ownership or are subject to an open space easement, development rights dedication or other enforceable restriction that regulates the use of the property from being utilized as other lands in private ownership. The MOSO district also may be used to identify and regulate residual parcels and those lands that have low development capability and are characterized by such factors as steep slopes, unstable soils, fault zones or high visibility.

5.3 Moraga Tree Preservation Ordinance

The Moraga 2002 General Plan includes policies for the preservation of trees and tree-covered areas. Policy OS2.8 Tree Preservation states, “Preserve and protect trees wherever they are located in the community as they contribute to the beauty and environmental quality of the Town.” This policy is implemented through the Moraga Tree Preservation Ordinance. Policy OS2.9 Tree-covered Areas states, “Preserve or substantially maintain in their present form certain tree-covered areas, especially with respect to their value as wildlife habitats, even if development in those areas is permitted. Give preference to the retention of original growth over replanting.”

Ordinance 182 and Moraga Municipal Code Chapter 12 (Section 12.12.030) establish permit requirements for the removal of native trees, orchard trees or trees of historic significance. The tree preservation ordinance requires any person who desires to cut down, destroy or remove a general tree, a native tree, an orchard tree or a tree of historic significance, located either on public or private property, to obtain a permit from the Planning Director. “Trees” are defined as live woody plants having a single trunk diameter of five inches or more measured three feet above the natural grade or, if having multiple trunks, a total perimeter of forty inches or more measured three feet above the natural grade. There are established four classes of trees: general, native, orchard and trees of historic significance.

A. A general tree is a tree other than a native tree, an orchard tree or tree of historic significance.

B. A native tree is a tree, which is native to California and indigenous to the Moraga area, the most common being the bay, oak, redwood, toyan and the knobcone pine.

C. An orchard tree or trees are fruit or nut trees planted for commercial agricultural purposes.

D. A tree of historic significance as a tree having historic value related to the heritage of the town and designated by action of the town council.

Arborist reports are required when development or construction encroaches within the dripline of any regulated tree. The location of trees is required for grading plans and building permit applications.

There are hundreds of trees on the property subject to regulation under the Town of Moraga tree preservation ordinance. The Project Applicant would be required to hire a certified arborist to prepare a tree survey and arborist report to identify trees subject to regulation by the Town of Moraga.

5.4 Moraga CEQA Evaluation Criteria

Criteria described in Table 1 are used to determine if the Project would have a significant impact on biological resources.

Table 1. CEQA Evaluation Criteria with Points of Significance

Evaluation Criteria	As Measured by	Point of Significance	Justification
1. Will the Project result in a substantial loss of native vegetation or wildlife populations?	Proportion of habitat or population affected	Local viability of species or habitat threatened	CEQA Checklist IV(d); Moraga General Plan Policies CD1.1, CD1.4 – CD1.5, OS2.1, OS2.8-2.9
2. Will the Project cause a permanent loss of sensitive natural communities?	Acres of sensitive community lost	Net loss of sensitive community	CEQA Checklist IV(b); CEQA (Article 5, §15065); CDFG (F&G §1900-1913); CDFG Interim Wildlife/Hardwood Management Guidelines (Feb. 1, 1989); CDFG (2007a); Moraga General Plan Policies CD1.1, CD1.4 – 1.6, OS2.2 – OS2.3, and OS2.9
3. Will the Project result in a net loss of wetlands, streams or other waters of the U.S.?	Acreage or volume of excavation or fill in waters of the U.S.	Net loss of waters of the U.S.	CEQA Checklist IV(b-c); CWA §404(b)(1) and §401; PCWQCA; Moraga General Plan Policies CD1.1, CD1.4, OS2.1 – 2.2, and OS3.4 – 3.6
4. Will the Project cause a loss of individuals or populations of special-status plant species?	Number of plant species or populations lost	More than 15% of known occurrences or populations in Project vicinity	CEQA Checklist IV(a); F&G §1900-1913; CEQA (Article 5, §15065)
5. Will the Project cause a loss of individuals or habitat of endangered, threatened, rare, or fully protected wildlife?	Number of individuals or acres of occupied or Critical Habitat lost	Greater than 0 individuals, occupied habitat, or Critical Habitat.	CEQA Checklist IV(a); ESA, CESA; CEQA (§15065); F&G §2081 and 3511; and Moraga General Plan Policy OS2.1.

Table 1. CEQA Evaluation Criteria with Points of Significance			
Evaluation Criteria	**As Measured by**	**Point of Significance**	**Justification**
6. Will the Project cause a loss of active raptor nests, migratory bird nests, or native wildlife nursery sites?	Number of active nesting or breeding sites.	Greater than 0 active nesting or breeding sites removed.	CEQA Checklist IV(d); Fish and Game Code Sections 3503, 3505, 3513 and 3800; Moraga General Plan Policies OS2.1 and OS2.9.
7. Will the Project substantially block or disrupt wildlife or fish migration or travel corridors?	Number of corridors substantially blocked or disrupted.	Greater than 0 corridors blocked to key species.	CEQA Checklist IV(d); Moraga General Plan Policy OS2.5.
8. Will the Project conflict with local policies or ordinances for the protection of biological resources?	Number of plans under which a conflict will result.	Conflicts with one or more plan.	CEQA Checklist IV(e); Moraga Tree Ordinance; Moraga General Plan Policies CD1.2, CD1.4-1.6, OS2.1-2.3, OS2.7-2.9, OS3.4-3.6, Moraga Ordinance 182.
9. Will the Project conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan?	Number of plans under which a conflict will result.	Conflicts with one or more plan.	CEQA Checklist IV(f) and X(c).

6.0 REVIEW OF 2004 SYCAMORE REPORT AND RECOMMENDATIONS

In 2014, biologists evaluated both the 2004 Sycamore botanical report and the Project site, and concluded that focused protocol surveys for special-status plants were not indicated at this time for the following reasons:

- protocol surveys are not considered valid by CDFW if older than 18 months;
- protocol surveys could be conducted within 18 months prior to construction;
- site conditions had not significantly changed since 2003 to expect new occurrences of special-status plants; and
- those special-status plants found in 2003 were on the ridge and on the upper slopes of the site where no development is proposed.

Based on a review of the previous botanical report prepared by Sycamore (2004), review of the potential development as identified by the Property Owner and additional surveys conducted in 2014, it was determined that the following should be addressed in this Addendum:

- A review of biological resources under the California Environmental Quality Act (CEQA).

- An updated CNDDB search to identify special-status plant species occurrences within 5 miles and the last 10 years.

- Results of site visits conducted in 2014 that assessed the Study Area for the (1) potential wetlands/waters subject to jurisdiction by the USACE, RWQCB and CDFW; (2) presence of sensitive natural communities protected by state and federal regulations; and (3) potential to support special-status plant and wildlife species.

- Potential impacts to special-status plant species and sensitive natural communities should be identified, and the significance of potential impacts under CEQA should be identified.

- Mitigation measures to avoid or reduce potential impacts to special-status plant species and sensitive natural communities to a less-than-significant level should be identified.

It should be noted that the Study Area described by Sycamore in 2003 was approximately 400 acres and did not extend southeast to Canyon Road. The Study Area as described in this Addendum was modified since the Sycamore 2002-2003 surveys, and includes a portion of Canyon Road and Canyon Road right-of-way that may be needed for infrastructure improvements.

6.1 Methods

In June 2014, the potential occurrence of special-status plants in the Study Area was evaluated through a literature and database search. A database search for known occurrences of special-status plants focused on the Oakland East quadrangle and in particular the 5-mile radius surrounding the Study Area. Recent environmental documents prepared by the Town of Moraga also were reviewed. Additionally, several site visits were conducted and aerial photographs of the Study Area were reviewed.

On July 1, 2014, Olberding Environmental biologists Jeff Olberding, Chad Aakre, and Marc Beccio, and Marylee Guinon with Marylee Guinon LLC, conducted a site visit to determine (1) whether vegetation communities previously identified by Sycamore were still present within the 2014 Study Area; (2) if site conditions previously described by Sycamore were still accurate; (3) if existing conditions provided suitable habitat for any special-status plant or wildlife species; (4) if sensitive natural communities previously identified and described by Sycamore were still accurate; and (5) the extent of wetlands and waters that may be considered potentially subject to jurisdiction by the USACE, RWQCB and CDFW. This site visit was supplemented by an additional site visit conducted by Chad Aakre and Marylee Guinon on July 15, 2014.

The vegetation communities and aquatic features found on site in 2003 were updated based on the 2014 site visits, and include the area along Canyon Road that may be needed for infrastructure improvements.

Prior to the site visits, the following documents were reviewed:

- *Botanical Assessment of the Indian Valley Property, Moraga, Contra Costa County, California* (Sycamore 2004);

- *California Red-legged Frog Focused Surveys for the Indian Valley Property, Moraga, Contra Costa County, California* (Sycamore 2003a); and

- *Biological and Wetlands Assessment for the Indian Valley Property, Moraga, Contra Costa County* (Sycamore 2003b).

Based on the previous surveys conducted by Sycamore (2002-2003), and review of the CNDDB (2014) search, the following special-status plant species have been documented within five miles of the Study Area within the last 10 years: most beautiful jewelflower, bent-flowered fiddleneck, western leatherwood, pallid manzanita, Oregon meconella, robust monardella, Oakland star-tulip, Tiburon buckwheat, and Diablo helianthella. Descriptions of special-status plant species identified in the 2003 Study Area and with potential to occur in the 2014 Study Area are described in Table 2.

Table 2. Special-Status Plants Potentially Present in the Study Area

Scientific Name **Common Name**	**Status**	**Flowering Period**	**Potential for Occurrence On Site and Habitat**
Special-Status Plants Identified in the 2003 Study Area			
Amsinckia lunaris bent-flowered fiddleneck	Fed: -- State: CEQA CNPS: List 1B.2	March - June	Detected during 2003 surveys. Mapped at nine locations on site. Annual herb found in open woods, valley/foothill grasslands.
Calochortus umbellatus Oakland star-tulip	Fed: -- State: CEQA CNPS: List 4.2	March – May	Detected during 2003 surveys. Mapped at two locations on site. Perennial bulbiferous herb in often serpentinite broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland from Lake to Stanislaus counties
Monardella villosa ssp. *globosa* robust monardella	Fed: -- State: CEQA CNPS: List 1B.2	June – July	Detected during 2003 surveys. Mapped at twelve locations on site. Rhizomatous herb in broadleaf upland forest openings, chaparral, woodlands, coastal scrub and grasslands in Coast Range from Bay Area to Humboldt
Other Special-Status Plants with Potential to Occur in the 2014 Study Area			
Arctostaphylos pallida pallid manzanita	Fed: T State: E CNPS: List 1B.1	December – March	None: no suitable habitat detected on site. Would have been detected during comprehensive 2003 surveys. Evergreen shrub in broadleaf upland forest, woodlands, chaparral in western Contra Costa and northwestern Alameda County

Table 2. Special-Status Plants Potentially Present in the Study Area			
Scientific Name **Common Name**	**Status**	**Flowering Period**	**Potential for Occurrence On Site and Habitat**
Calochortus pulchellus Mount Diablo fairy-lantern	Fed: -- State: CEQA CNPS: List 1B.2	April – June	None: marginally suitable habitat present on site. Would have been detectable during comprehensive 2003 surveys. Perennial herb (bulbiferous) found in chaparral, cismontane woodland, valley/foothill grassland.
Centromadia parryi ssp. congdonii Congdon's tarplant	Fed: SC State: CEQA CNPS: List 1B.1	June – November	None: marginally suitable habitat present on site. Would have been detectable during comprehensive 2003 surveys. Annual herb found in valley foothills grasslands on alkaline soils.
Dirca occidentalis western leatherwood	Fed: -- State: CEQA CNPS: List 1B.2	January – April	None: suitable habitat present on site but not detected during comprehensive surveys in 2003. Deciduous shrub in broadleaf upland forest, closed-cone coniferous forest, chaparral, woodlands, riparian woodlands, and North Coast coniferous forests around the Bay Area
Erodium macrophyllum round-leaved filaree	Fed: -- State: CEQA CNPS: List 1B.1	March – May	None: marginally suitable habitat present on site. Would have been detectable during comprehensive 2003 surveys. Annual herb found in cismontane woodland, valley and foothill grasslands, on clay soil.
Eriogonum luteolum var. *caninum* Tiburon buckwheat	Fed: -- State: CEQA CNPS: List 1B.2	May – September	None: no suitable habitat on site. Annual herb in chaparral, coastal prairie, woodlands, and grasslands in sandy, gravelly, and serpentine soils in the Bay Area
Frittllaria liliacea fragrant fritillary	Fed: SC State: CEQA CNPS: List 1B.2	February – April	None: marginally suitable habitat present on site. Would have been detectable during comprehensive 2003 surveys. Perennial herb (bulbiferous) found in coastal prairie, coastal scrub, valley/foothill grassland near the coast, on clay or serpentinite.
Helianthella castanea Diablo helianthella	Fed: -- State: CEQA CNPS: List 1B.2	April – June	None: suitable habitat present on site but not detected during comprehensive surveys in 2003. Perennial herb in broadleaf upland forests, chaparral, woodlands, coastal scrub, riparian woodlands, and grasslands in mostly the East Bay

Table 2. Special-Status Plants Potentially Present in the Study Area			
Scientific Name **Common Name**	**Status**	**Flowering Period**	**Potential for Occurrence On Site and Habitat**
Holocarpha macradenia Santa Cruz tarplant	Fed: T State: E CNPS: List 1B.1	June – October	None: marginally suitable habitat present on site. Would have been detectable during comprehensive 2003 surveys. Annual herb found in coastal prairie, valley/foothill grassland, often on heavy clay soils.
Juglans californica var. hindsii Northern California black walnut	Fed: SC State: CEQA CNPS: List 1B.1	April – May	None: planted orchard stock present during 2003 surveys. Natural populations not present. Deciduous tree found in riparian forests and riparian woodlands.
Lasthenia conjugens Contra Costa goldfields	Fed: E State: CEQA CNPS: List 1B.1	March – June	None: marginally suitable habitat present on site. Would have been detectable during comprehensive 2003 surveys. Annual herb found in mesic sites in valley/foothill grassland, vernal pools.
Meconella oregana Oregon meconella	Fed: -- State: CEQA CNPS: List 1B.1	March – April	Annual herb in coastal prairie and scrub in East Bay
Monardella antonina ssp. antonina San Antonio Hills monardella	Fed: -- State: -- CNPS: List 3	June – August	None: suitable habitat present on site. Would have been detectable during comprehensive 2003 surveys. Perennial herb (rhizomatous) found in chaparral and cismontane woodland.
Streptanthus albidus ssp. *peramoenus* most beautiful jewel-flower	Fed: -- State: CEQA CNPS: List 1B.2	April – June	None: marginally suitable habitat on site. Would have been detectable during comprehensive 2003 surveys. Annual herb in chaparral, woodlands, and grasslands in serpentine soils, Bay Area to Central Coast
Viburnum ellipticum oval-leaved viburnum	Fed: -- State: CEQA CNPS: List 2B.3	May – June	None: suitable habitat present on site. Would have been detectable during comprehensive 2003 surveys. Deciduous shrub found in chaparral, cismontane woodland, lower montane coniferous forests.

Table 2. Special-Status Plants Potentially Present in the Study Area			
Scientific Name **Common Name**	**Status**	**Flowering Period**	**Potential for Occurrence On Site and Habitat**
Listing Status			
-- = no status			
SC = Species of Concern			
T = Threatened			
E = Endangered			
CEQA = should be evaluated in CEQA environmental documents			
CNPS California Rare Plant Rank			
1A: Presumed extinct in California.			
1B: Rare, threatened, or endangered in California and elsewhere.			
2: Rare, threatened, or endangered in California, but more common elsewhere.			
3: More information is needed about this plant (Review List).			
4: Plants of Limited Distribution – A Watch List.			
CNPS Threat Ranks			
0.1 = seriously threatened in California (high degree/immediacy of threat).			
0.2 = fairly threatened in California (moderate degree/immediacy of threat).			
0.3 = not very threatened in California (low degree/immediacy of threats or no current threats known).			

6.2 Habitat Assessment and Occurrence in the Project Vicinity

Sycamore documented the presence of robust monardella, bent-flowered fiddleneck and Oakland star-tulip on site during protocol botanical surveys conducted in 2003 (Figure 7). None of these species have an official status as state- or federally-protected species; however, two of the species, bent-flowered fiddleneck and robust monardella, are identified as List 1B.2 species by the CNPS indicating they are rare, threatened, or endangered in California and elsewhere and fairly threatened in California (moderate degree/immediacy of threat).

Several populations of robust monardella were located on the property during the 2003 protocol surveys. Populations consisted of a single plant to several individuals. The plants were found on the eastern portion of the property on steep, generally rocky, west-facing slopes associated with scrub communities.

Nine populations of bent-flowered fiddleneck were identified on the property during the 2003 protocol surveys on moderate to steep slopes on the upper portions of Gudde Ridge on the eastern side of the property. Population sizes ranged between an estimated 50 to approximately 500 individuals. Additionally, another population was detected immediately adjacent to the southwestern corner of the 2003 Study Area.

Two populations of Oakland star-tulip (CNPS List 4.2) were identified in the 2003 Study Area during the 2003 protocol surveys in grassy openings on the upper, eastern slopes of Gudde

Ridge, on the eastern side of the property. Population sizes ranged from four to approximately 140 individuals.

There are reported occurrences of other CNDDB plant species within 5 miles of the 2014 Study Area over the last 10 years as shown on Figure 8. With documented presence of three plant species recognized by the CNPS, and reported occurrences of other CNDDB plant species within 5 miles of the 2014 Study Area over the last 10 years, special-status plant species have the potential to occur on site.

6.3 Potential Impacts

A residential development Project would include grading, road, utility and infrastructure construction and development of homes, public trails, storm water detention basins, etc. Construction would result in the conversion of some of the undeveloped land to developed uses. Approximately 62.9 acres of habitat would be permanently impacted, and an additional 59.5 acres would be temporarily impacted (Table 3). Areas requiring temporary grading for slope stabilization would be hydroseeded and restored to grassland; therefore, impacts to these areas are considered temporary.

The proposed development of the Indian Valley property has been designed to avoid and minimize impacts to the regional biological movement corridors. The proposed Project preserves the entire Indian Creek corridor, a critical regional connection. The Project also preserves several of the drainage stream corridors that flow from the upper watershed and into Indian Creek, to the maximum extent possible. Storm drain outfalls are designed to outflow to Indian Creek outside the actual creek channel via existing drainages. Several biological corridors are preserved, originating from the ridge to the north east of the Project Boundary and connecting to Indian Creek to the southwest. Wildlife and even plant species will be able to migrate freely through these biological corridors. The most important biological corridors that run along the preserved Indian Creek corridor and along Indian Ridge and the upper slopes of the property, are also preserved (Figure 9).

Table 3. Development Impact Summary	
	Acres
Project Site	
Permanent impacts (houses, roads, infrastructure, etc.)	62.9
Temporary impacts (GHAD and Open Space)	59.5
Subtotal	122.4
No impacts (GHAD and Open Space)	18.5
Total Project Site	**140.9**
Remainder of Bruzzone Family Holdings	311.7
Canyon Road	
Permanent impacts (includes 0.51 acres of pavement)	1.3
Temporary impacts	1.0
TOTAL	**454.9**
Note: All numbers are rounded to the nearest hundredth. Sources: P/A Design Resources, Inc. design drawings dated June 22, 2015. Rusch pers. comm.	

Implementation of a residential development Project would result in the conversion of undeveloped land to developed uses. Most of the impacts to non-native annual grassland will be permanent in order to construct the housing units and construct the related infrastructure. Some of the impacts, however, will be temporary where the non-native annual grassland will be disturbed for 2 to 3 years during construction and revegetated with grass and forb species using standard erosion control best management practices. It is anticipated that the non-native annual grassland that is temporarily disturbed would be restored to grassland.

Permanent and temporary impacts associated with the proposed residential development of the site are estimated to be 124.19 acres, including impacts related to widening of Canyon Road (Table 4):

- 91.31 acres of non-native annual grassland,
- 1.81 acres of coast live oak woodland,
- 5.85 acres of northern coyote brush scrub,
- 21.24 acres of abandoned orchard with associated ruderal vegetation,
- 1.03 acres of Central Coast riparian scrub,
- 2.92 acres of freshwater marsh and seeps, and
- 0.03 acres of sage scrub and undifferentiated scrub.

Table 4. Estimated Impacts to Various Vegetation Community Types

Vegetation Community Type	Project Site					Remainder Bruzzone Family Holdings (acres)	Canyon Road Right-of-Way	
	Permanent Impacts (acres)	Temporary Impacts (GHAD and Open Space) (acres)	Subtotal (acres)	No Impact (GHAD and Open Space) (acres)	Total (acres)		Permanent Impacts (acres)	Temporary Impacts (acres)
Non-native annual grassland	45.11	44.89	90.0	12.57	102.57	126.10	0.46	0.85
Coast live oak woodland and isolated oaks (Sensitive Natural Community)	0.10	1.64	1.74	2.47	4.21	103.97	0.07	0
Northern coyote brush scrub	0.52	5.00	5.52	1.58	7.10	64.90	0.18	0.15
Abandoned orchard with associated ruderal vegetation	15.71	5.53	21.24	0.27	21.51	0.89	0	0
Central Coast riparian scrub (Sensitive Natural Community)	0.54	0.41	0.95	0.83	1.78	5.74	0.08	0
Freshwater marsh and seeps (a) (Sensitive Natural Community)	0.92	2.00	2.92	0.75	3.67	5.11	0	0
Sage scrub and undifferentiated scrub	0	0.03	0.03	0.03	0.06	4.99	0	0
Total	**62.9**	**59.5**	**122.4**	**18.5**	**140.9**	**311.7**	**1.30***	**1.0**

(a) Referred to as seasonal wetland in the *U.S. Army Corps of Engineers Jurisdictional Delineation for the Indian Valley Project, Contra Costa County, California*. (Olberding/Guinon 2014).

Notes: *Permanent impacts to Canyon Road right-of-way include 0.51 acres of pavement.
All numbers are rounded to the nearest hundredth.

Sources: P/A Design Resources, Inc. design drawings dated June 22, 2015. Rusch pers. comm.

Impact: Potential loss of special-status plant species. This impact is considered potentially significant because special-status plants are locally rare.

Sycamore (2003b and 2004) identified a total of 22 special-status plant species with at least some potential to occur within the region; however, eight species were considered to have no potential to occur on site due to lack of suitable habitat, the fact that they would have been detectable during the reconnaissance-level survey, or are considered out of range. Based on the presence of potentially suitable habitat for the remaining 14 species, focused botanical surveys were conducted on site during seasons appropriate for the detection of any potentially occurring species. During the course of the surveys conducted in 2003, no federally- or state-listed Endangered or Threatened plant species were detected within the 2003 Study Area, and none were expected.

Three populations of CNPS listed plant species were detected within the Study Area during the 2003 surveys: bent-flowered fiddleneck (*Amsinckia lunaris*, CNPS List 1B), robust monardella (*Monardella villosa* ssp. *globosa*, CNPS List 1B), and Oakland star-tulip (*Calochortus umbellatus*, CNPS List 4). No other special-status plant species were detected on site, and none were expected.

No special-status plants were observed during the jurisdictional wetland delineation field work conducted in July 2014.

Implementation of a residential development Project may result in direct (e.g. removal of plants) and/or indirect effects (e.g. changes in drainage patterns or erosion that results in plants dying) to individuals of locally rare plant species including bent-flowered fiddleneck, Oakland star-tulip, robust monardella, and other special-status plant species that may be present on site.

Most of the potential habitat for most locally rare species is located outside of the proposed development area and would not be affected during construction.

6.4 Recommended Mitigation Measure

Implementation of the following mitigation measure will reduce potential impacts to special-status plants to a less-than-significant level.

1. **Conduct pre-construction botanical surveys and restore removed populations at a 2:1 ratio to ensure no net loss of habitat.**

The Project Applicant shall retain a qualified botanist to conduct pre-construction botanical surveys of the construction footprint according to CDFW and USFWS protocols. The surveys shall be floristic in nature and conducted during the period necessary to identify special-status plant species with potential to occur. The floristic surveys will be considered valid for 18 months. If more than 18 months pass between the time of the surveys and construction, additional surveys may be required. If locally rare or plant species listed by the CNPS are detected, removed populations shall be restored and established with other native habitats such that there is no net loss of the number of individuals or extent of removed populations.

If state- or federally-listed species are detected, the Project Applicant shall consult with the CDFW and/or the USFWS as required to develop feasible take avoidance, minimization, and mitigation measures. Potential mitigation measures may include restoration of removed populations such that there is no net loss of individuals of special-status plants. In the event there is a plant mitigation program, the restoration area will be protected by a deed restriction to protect the plants in perpetuity. Copies of botanical reports and permits shall be provided to the Town of Moraga prior to issuance of a Grading Permit.

7.0 REFERENCES

California Department of Fish and Game (CDFG). 2000. *Guidelines for Assessing the Effects of Proposed Developments on Rare and Endangered Plants and Plant Communities*. The Resources Agency, Sacramento. Revised August 15.

California Department of Fish and Game (CDFG). 2003a. *Natural Diversity Data Base printout for the Oakland East and adjacent 7.5-minute topographic quadrangles*. Natural Heritage Division. Sacramento, California. The Resources Agency. November.

California Department of Fish and Game (CDFG). 2003b. *Special Vascular Plants, Bryophytes, and Lichens List.* Natural Diversity Data Base. January.

California Department of Fish and Game (CDFG). 2003c. *State and Federally Listed Endangered, Threatened, and Rare Plants of California*. Natural Diversity Data Base. April.

California Department of Fish and Wildlife (CDFW). 2014. *California Natural Diversity Data Base (CNDDB) Search of the Oakland East quadrangle*. State of California, The Resources Agency, CDFW, Biogeographic Data Branch, CNDDB. Sacramento, CA. Accessed June 19, 2014.

California Native Plant Society (CNPS). 2001. *Inventory of Rare and Endangered Plants of California* (sixth edition). Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. Sacramento, California. 388 pp.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. 131 pp.

Holland, R. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. California Department of Fish and Game, The Resources Agency. 156 pp.

Lake. D. 2004. *Unusual and Significant Plants of Alameda and Contra Costa Counties*. Seventh Edition. California Native Plant Society, East Bay Chapter. March 1.

Olberding Environmental, Inc. and Marylee Guinon (Olberding/Guinon). 2014. *U.S. Army Corps of Engineers Jurisdictional Delineation for the Indian Valley Project, Contra Costa County, California*. Folsom, CA.

Olson, B.L. 1994. *Status of Rare, Threatened and Endangered Vascular Plants in Alameda and Contra Costa Counties (and Some Adjacent Areas).* Third Edition. California Native Plant Society, East Bay Chapter, Rare Plant Committee. March 1.

P/A Design Resources, Inc. 2015. Design drawings dated June 22, 2015.

Rusch, Mark. 2015. Personal communication with Kim Erickson related to impact acreages. June 17, 2015.

Sawyer, J.O. and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society, Sacramento. 471 pp.

Sycamore Associates LLC (Sycamore). 2003a. *California Red-legged Frog Focused Surveys for the Indian Valley Property, Moraga, Contra Costa County, California*. Walnut Creek, CA.

Sycamore Associates LLC (Sycamore). 2003b. *Biological and Wetlands Assessment for the Indian Valley Property, Moraga, Contra Costa County*. Walnut Creek, CA.

Sycamore Associates LLC (Sycamore). 2004. *Botanical Assessment of the Indian Valley Property, Moraga, Contra Costa County, California*. March 31, 2004. Walnut Creek, CA.

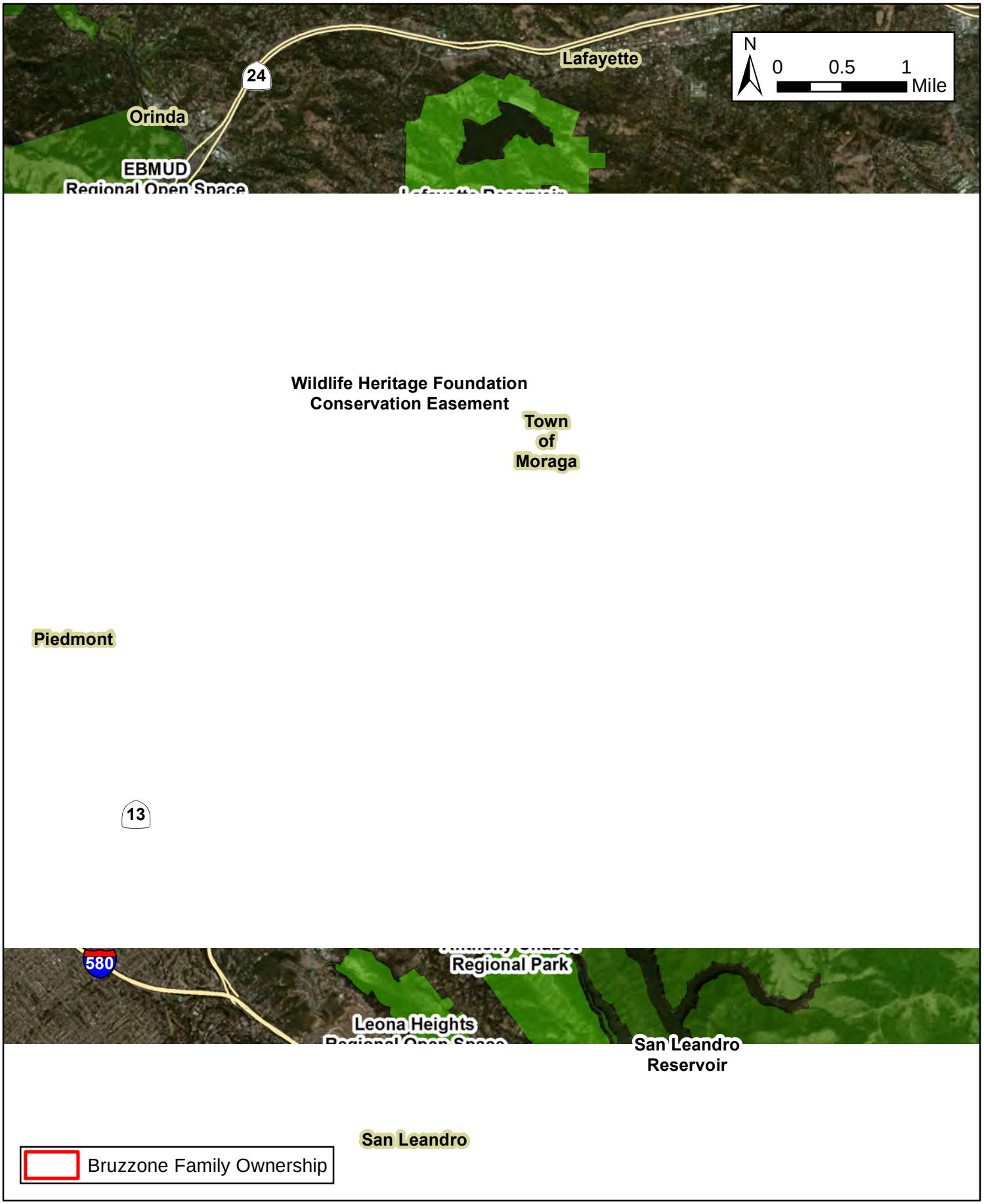
U.S. Fish and Wildlife Service (Sycamore). 1996. *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants*. September 23.

U.S. Fish and Wildlife Service 1998 (USFWS). *Endangered and Threatened Wildlife and Plants*. 50 CFR 17.11 & 17.12. December 31.

U.S. Fish and Wildlife Service (USFWS). 2006. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the California Red-legged Frog, and Special Rule Exemption Associated with Final Listing for Existing Routine Ranching Activities. Federal Register 71(71): 19244-19-293. Thursday, April 13, 2006.

Attachment 1

Figures



193 Blue Ravine Rd., Ste. 165
Folsom, CA 95630
Phone: (916) 985-1188

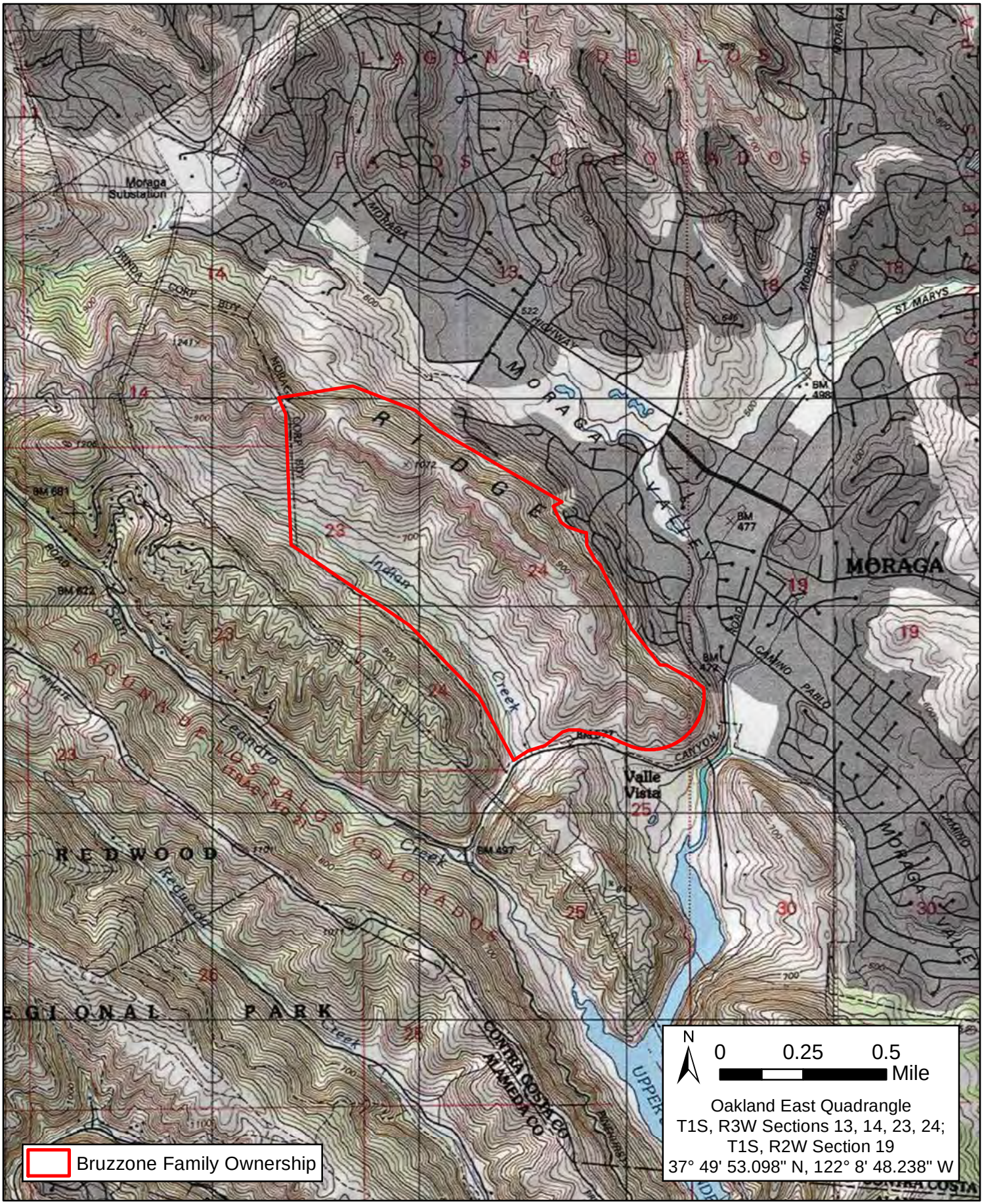
Figure 2: Project Vicinity
Indian Valley Project

Imagery Source and Date: ESRI/Bing; 11/02/2010

OLBERDING ENVIRONMENTAL INC.
193 Blue Ravine Rd., Ste. 165
Folsom, CA 95630
Phone: (916) 985-1188

Figure 3: Aerial Map
Indian Valley Project

Aerial Image Source and Date: Digital Globe; 06/09/2014



Oakland East Quadrangle
T1S, R3W Sections 13, 14, 23, 24;
T1S, R2W Section 19
37° 49' 53.098" N, 122° 8' 48.238" W

OLBERDING ENVIRONMENTAL INC.
193 Blue Ravine Rd., Ste. 165
Folsom, CA 95630
Phone: (916) 985-1188

Figure 4: USGS Topographic Map
Indian Valley Project

Bruzzone Family Ownership
Freshwater Marsh/Seep
Unvegetated Waters
Non-native Annual Grasslands
Abandoned Orchard
Central Coast Riparian Scrub
Coast Live Oak Woodland and Isolated Oaks
Freshwater Marsh/Seep
Northern Coyote Brush Scrub
Sage Scrub
Undifferentiated Scrub

N
0 0.1 0.2 Mile

GIBERDING ENVIRONMENTAL INC.
193 Blue Ravine Rd., Ste. 165
Folsom, CA 95630
Phone: (916) 985-1188

Figure 5: Vegetation Communities and Aquatic Features of Indian Valley
Indian Valley Project

Aerial Image Source and Date: Microsoft/Bing; 11/02/2010

INDIAN VALLEY

TOWN OF MORAGA, CALIFORNIA

PROJECT IMPACT EXHIBIT

JUNE 22, 2015

INDICATES PERMANENT IMPACTS		
PROJECT (DEVELOPED)	= 51.1 ACRES	
PROJECT (PUBLIC R/W)	= 1.3 ACRES	
TOTAL	52.4	
INDICATES TEMPORARY IMPACTS		
PROJECT (OPEN SPACE)	= 59.5 ACRES	
PROJECT (PUBLIC R/W)	= 1.0 ACRES	
TOTAL	60.5	
INDICATES PERMANENT IMPACTS		
PROJECT (OPENSPACE)	= 11.8 ACRES	
TOTAL	11.8	
INDICATES NO IMPACTS		
PROJECT (OPENSPACE)	= 18.5 ACRES	
TOTAL	18.5	

Figure 6: Indian Valley Project Impact Exhibit

P/A Design Resources, Inc.
Planning ■ Engineering ■ Surveying
3021 Citrus Circle, Suite 150
Walnut Creek, California 94598-2635
TEL (925) 210-9300

Special-status Species Population Data		
Ben-flowered Fiddleneck *(Amsinckia lunaris)* CNPS List 1B		
Population ID	**Number of Individuals**	**Survey Date**
A-1	~500	4/10/2003
A-2	~60	4/10/2003
A-3	~300	4/10/2003
A-4	~70	4/10/2003
A-5	~80	4/10/2003
A-6	~150	4/10/2003
A-7	~200	4/10/2003
A-8	~90	4/10/2003
A-9	~50	4/10/2003
Oakland Star Tulip *(Calochortus umbellatus)* CNPS List 4		
Population ID	**Number of Individuals**	**Survey Date**
C-1	~4	4/10/2003
C-2	~140	4/10/2003
Robust Monardella *(Monardella villosa ssp. Globosa)* CNPS List 1B		
Population ID	**Number of Individuals**	**Survey Date**
M-1	1	7/3/2003
M-2	2	7/3/2003
M-3	1	7/3/2003
M-4	4	7/3/2003
M-5	1	7/3/2003
M-6	1	7/3/2003
M-7	1	7/3/2003
M-8	1	7/3/2003
M-9	1	7/3/2003
M-10	1	7/3/2003
M-11	1	7/3/2003
M-12	1	7/3/2003

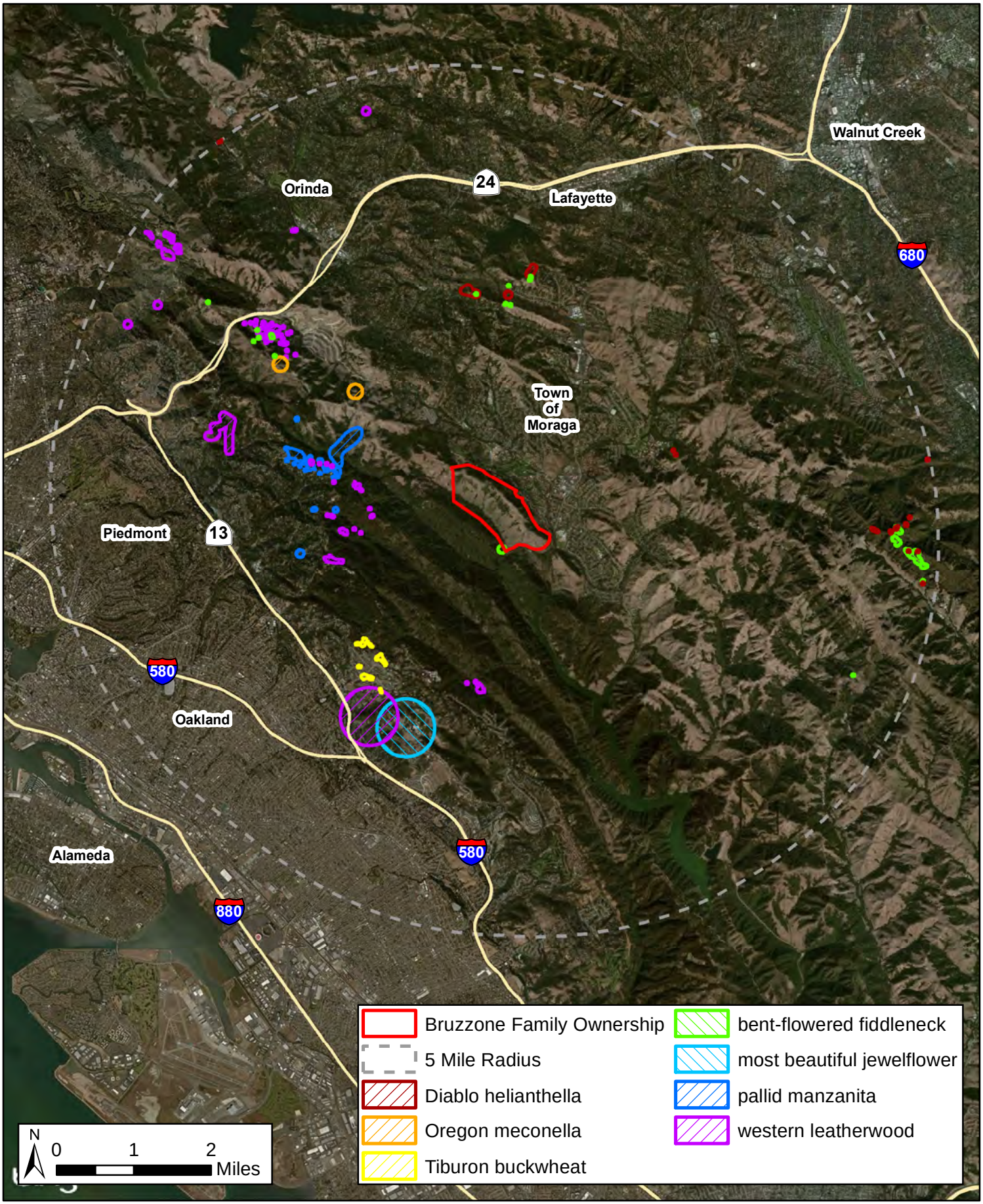
Bruzzone Family Ownership
Bent-flowered fiddleneck (Amsinckia lunaris) CNPS List 1B
Oakland star tulip (Calochortus umbellatus) CNPS List 4
Robust monardella (Monardella villosa ssp. globosa) CNPS List 1B

N 0 0.1 0.2 Mile

OLBERDING ENVIRONMENTAL INC.
193 Blue Ravine Rd., Ste. 165
Folsom, CA 95630
Phone: (916) 985-1188

Figure 7: Special-status Plants Found During Surveys Conducted in 2003 Indian Valley Project

Aerial Image Source and Date: Microsoft/Bing; 11/02/2010



193 Blue Ravine Rd., Ste. 165
Folsom, CA 95630
Phone: (916) 985-1188

Figure 8: CNDDB Plant Occurrences Within 5 Miles and 10 Years Indian Valley Project

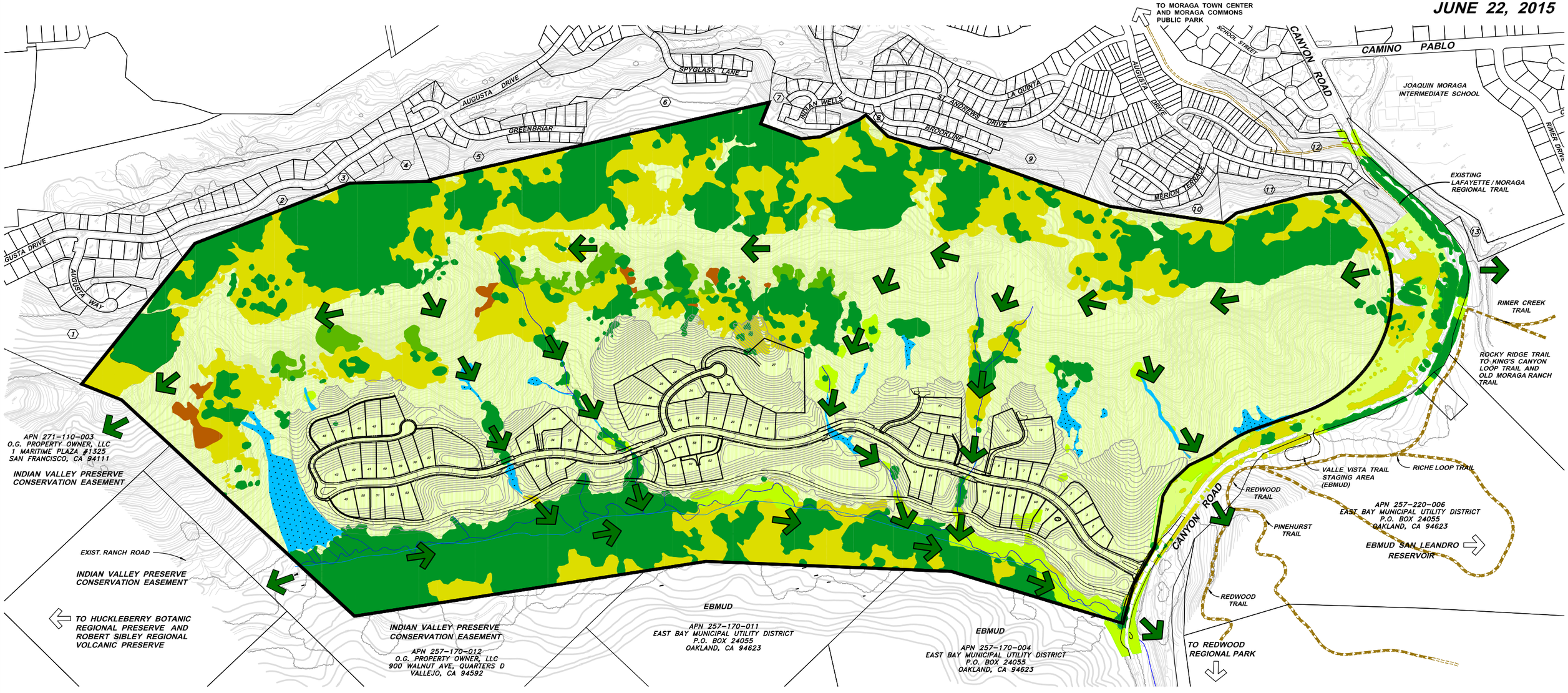
Aerial Image Source and Date: Microsoft/Bing; 11/02/2010

INDIAN VALLEY

TOWN OF MORAGA, CALIFORNIA

WILDLIFE AVOIDANCE & BIOLOGICAL MOVEMENT CORRIDOR EXHIBIT

JUNE 22, 2015



LEGEND

- NATURAL DRAINAGE COURSE (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)
- SEEP (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)
- COAST LIVE OAK WOODLAND (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)
- NON-NATIVE ANNUAL GRASSLAND (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)
- COYOTE BRUSH SCRUB (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)
- FRESHWATER MARSH SEEP (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)
- SAGE SCRUB (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)
- CENTRAL COAST RIPARIAN SCRUB (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)
- UNDIFFERENTIATED SCRUB (SOURCE: SYCAMORE ASSOCIATES, MARCH 2004)

0 300 600

KEY **LEGEND**

INDICATES BIOLOGICAL WILDLIFE MOVEMENT CORRIDORS
(NOTE: MOVEMENT FLOWS IN BOTH DIRECTIONS)

Figure 9: Wildlife Avoidance & Biological Movement Corridor Exhibit

P/A **Design Resources, Inc.**
Planning ■ Engineering ■ Surveying
2700 Ygnacio Valley Road, Suite 100
Walnut Creek, California 94598-3462 TEL (925) 210-9300