30 Day Review

(per February 26, 2016 Pre-Application Meeting)

DETERMINATION OF BIOLOGICALLY EQUIVALENT OR SUPERIOR PRESERVATION
SYCAMORE CANYON BUSINESS PARK WAREHOUSE PROJECT
CITY OF RIVERSIDE, RIVERSIDE COUNTY, CALIFORNIA

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Amec Foster Wheeler Project No. 1555400636

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ACRONYMS AND ABBREVIATIONS

Amec Foster Wheeler	Amec Foster Wheeler, Environment & Infrastructure, Inc.
AMSL	above mean sea level
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
DBESP	Determination of Biologically Equivalent or Superior Preservation
LBV	Least Bell's Vireo
MSHCP	Western Riverside Multiple Species Habitat Conservation Plan
NPDES	National Pollutant Discharge Elimination System
PQP	Public/Quasi-Public
R4SBJ	Riverine, Intermittent, Streambed Intermittently Flooded based on Classification of Wetlands and Deepwater Habitats of the United States
RCA	Resource Conservation Authority
RCRCD	Riverside County Resource Conservation District
SWFL	Southwestern willow flycatcher
USACE	U.S. Army Corps of Engineers
USDA	United States Department of Agriculture, Natural Resources Conservation Service
USFWS	U.S. Fish and Wildlife Service
USGS	U. S. Geologic Survey
WSC	Waters of the State of California
WQMP	Water Quality Management Plan

1.0 INTRODUCTION

Amec Foster Wheeler, Environment & Infrastructure, Inc. (Amec Foster Wheeler) was contracted by Albert A. Webb Associates to conduct a Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) Determination of Biologically Equivalent or Superior Preservation (DBESP) for the Sycamore Canyon Business Park Warehouse Project parcels, hereafter referred to as project, study area, or site. A DBESP is required because the project will result in impacts to riparian/riverine areas, as defined by the MSHCP (Riverside County 2003). The purpose of this report is to demonstrate that the proposed mitigation would provide an equivalent or superior preservation of habitat functions and values of riparian/riverine resources.

1.1 Project Description

The proposed project involves the development of two warehouse buildings and associated parking spaces and water quality features within a 72-acre project site. The two warehouse buildings will total 1.5 million square feet with standard auto parking and trailer stalls. The planned project requires the entirety of the site, making avoidance of existing resources impossible.

1.2 Project Location

The project site is generally located north of Alessandro Boulevard, south of State Route 60, east of Interstate 15, and west of Interstate 215 (Figure 1). The project site is located in Section 4 of Township 3 South, Range 4 West, as shown on the U.S. Geological Survey (USGS) 7.5 minute Riverside East, Ca. quadrangle (Figure 2). The elevation of the gently rolling project site ranges between 1,530 and 1,620 feet above sea level. The geographic coordinates near the middle of the site are 33.939250° North latitude and -117.307438° West longitude.

The project area is specifically located north of Sierra Ridge Drive, south of Sutherland Drive, east of Sycamore Canyon Wilderness Park, and west of Sycamore Canyon Boulevard, and encompasses Assessor's Parcel Numbers: 263-020-003, through -006, 263-300 through -006, 263-300-025, 263-300-029, 263-300-030, 263-300-033, 263-300-034, and 263-300-035 (Figure 3).

Prepared By: Mindy Beohm, AMEC FW Source: AA WEBB

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Date: 5/17/2016

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Vicinity & Location
Sycamore Canyon Business Park Warehouse Project

FIGURE
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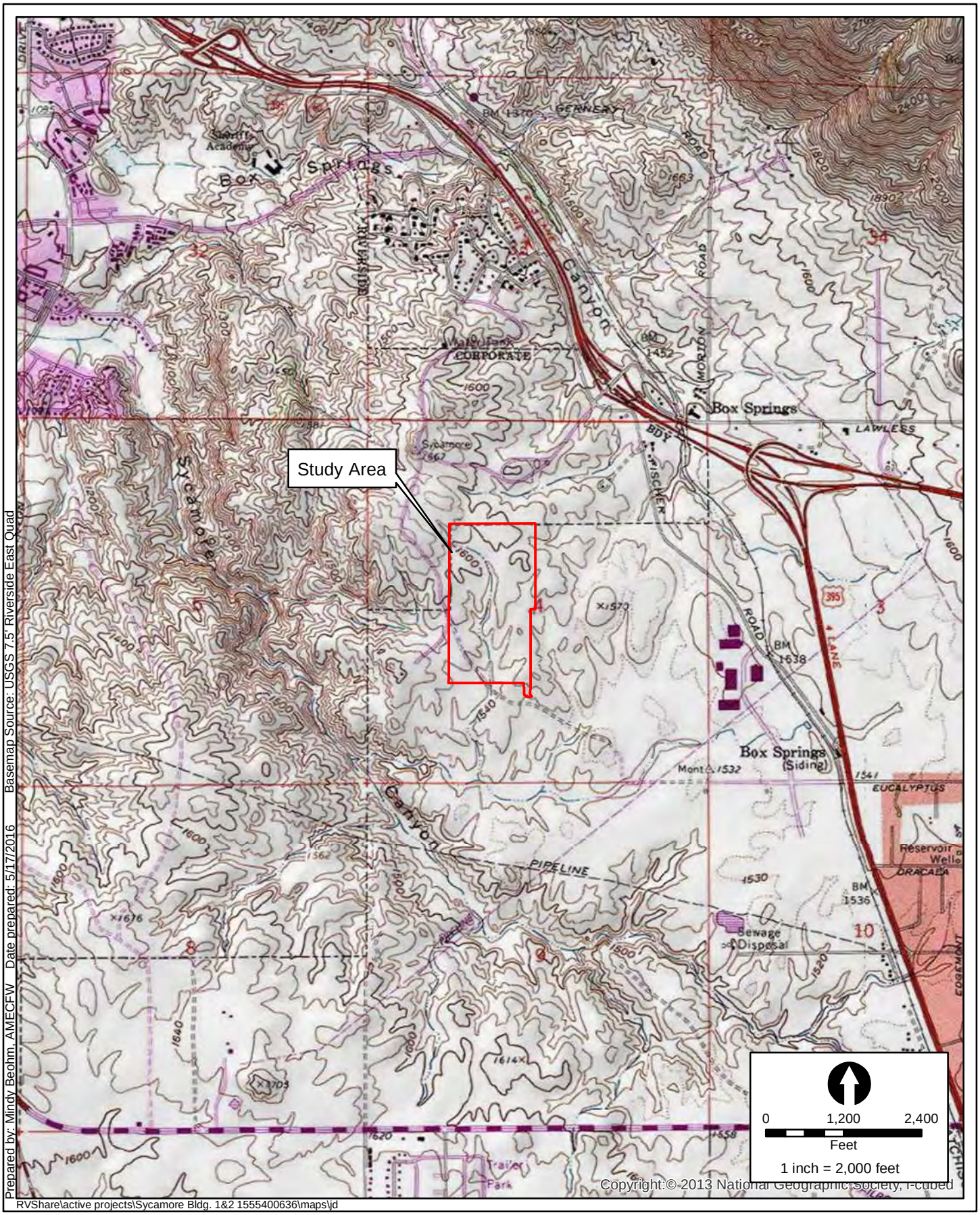

Prepared by: Mindy Beohm, AMECFW Date prepared: 5/17/2016 Basemap Source: USGS 7.5' Riverside East Quad

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USGS Topographic Map
Sycamore Canyon Business Park Warehouse Project

FIGURE
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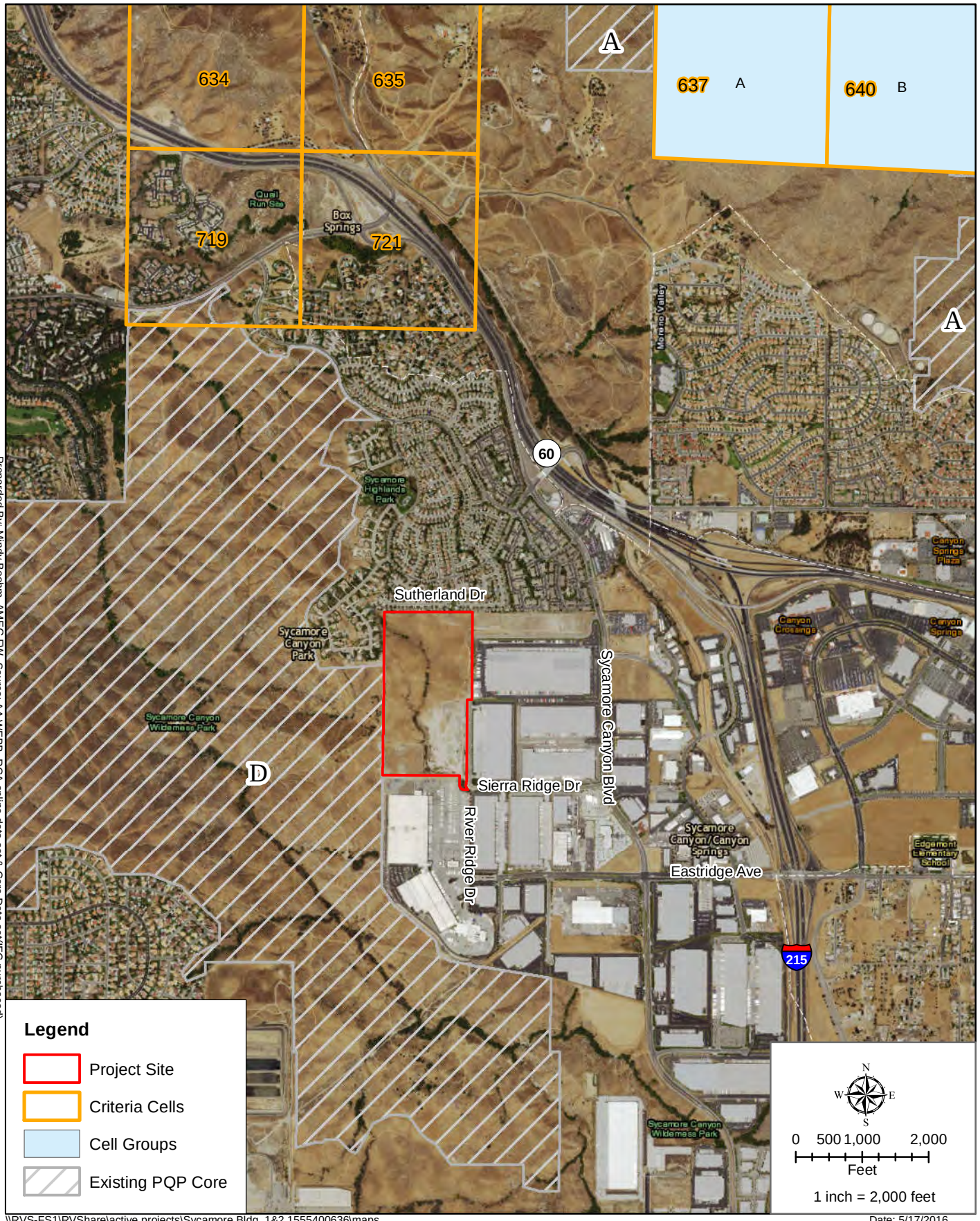

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MSHCP Map
Sycamore Canyon Business Park Warehouse Project

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2.0 METHODS

2.1 Literature Review

Amec Foster Wheeler conducted a review of existing documents for the proposed project and other relevant reference materials prior to the subject analysis. Previous documentation for the proposed project reviewed for the preparation of the subject DBESP includes the following:

- Sycamore Canyon Business Park Warehouse Project, Biological Assessment and Western Riverside Multi-Species Habitat Conservation Plan Compliance Report (Amec Foster Wheeler 2015a)
- Draft Jurisdictional Delineation Report, Sycamore Canyon Business Park Warehouse Project (Amec Foster Wheeler 2016)
- Least Bell's Vireo (*Vireo bellii pusillus*) Presence/Absence Surveys for Hillwood Investment Properties' Sycamore Canyon Business Park Project Located in the City of Riverside, Riverside County, California (Michael Baker International, August, 2015).

2.2 Field Reconnaissance

Amec Foster Wheeler senior biologists Nathan Moorhatch and Lisa Wadley conducted a reconnaissance-level field biological survey on May 12, 2015 from 08:50 a.m. to 11:30 a.m. Weather conditions during the survey included cloudy to partly cloudy skies with an average temperature of 65°F (degrees Fahrenheit) and winds between 2 and 7 miles per hour. Habitat was assessed based on the presence or absence of habitat components (e.g., soils, vegetation and topography) that are characteristic of potentially occurring special status species determined by the literature review/database search. All flora and vertebrate fauna observed or otherwise detected (e.g., vocalizations, presence of scat, tracks, and/or bones) on the project site during the course of this assessment were recorded and are included in Appendix A.

Amec Foster Wheeler senior biologist Scott Crawford conducted the jurisdictional delineation, including an assessment of riparian/riverine resources, on 2 June 2015. The survey consisted of walking the entire study area and identifying potentially jurisdictional water features. Visual observations of vegetation types and changes in hydrology were used to locate areas for evaluation. Weather conditions during delineation fieldwork were conducive for surveying, with generally clear skies, a temperature of 65 degrees Fahrenheit and winds between 0 and 2 miles per hour.

2.2.1 Riparian/Riverine/Vernal Pools and Fairy Shrimp Habitat Methods

MSHCP Section 6.1.2, "Protection of Species Associated with Riparian / Riverine Areas and Vernal Pools," (Riverside County 2003) describes the process through which the biological functions and values of such areas throughout the MSHCP area are maintained such that

habitat values for species in the MSHCP conservation area are maintained. Protection of these resources is important for a number of MSHCP conservation objectives. An assessment of a project's potentially significant effects on riparian/riverine areas, vernal pools, and fairy shrimp habitat is required. Guidelines for determining whether these resources exist on-site are described below.

Riparian/riverine areas, vernal pools, and fairy shrimp habitat are defined as follows:

- **Riparian/Riverine Areas:** Lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year.
- **Vernal Pools:** Seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetlands plant species are normally dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season. The determination that an area exhibits vernal pool characteristics, and the definition of the watershed supporting vernal pool hydrology, must be made on a case-by-case basis. Such determinations should consider the length of the time the area exhibits upland and wetland characteristics and the manner in which the area fits into the overall ecological system as a wetland. Evidence concerning the persistence of an area's wetness can be obtained from its history, vegetation, soils, and drainage characteristics, uses to which it has been subjected, and weather and hydrologic records.
- **Fairy Shrimp:** For fairy shrimp, mapping of stock ponds, ephemeral pools and other features shall also be undertaken as determined appropriate by a qualified biologist.

To assess the potential impacts to riparian/riverine resources, vernal pools, and fairy shrimp habitat, features exhibiting the characteristics described above are evaluated, including wetlands created for the specific purpose of providing wetlands habitat or resulting from human actions to create open waters or from the alteration of natural stream courses. Other made-made features are excluded. The delineation should consider topography/ hydrology, soil composition, vegetation communities, and other biological factors. The reported results consider hydrologic regime, flood storage and flood flow modification, nutrient retention and transformation, sediment trapping and transport, toxicant trapping, public use, wildlife habitat, and aquatic habitat in relation to determining functions and values to the "purpose species" listed in Table 1 and the additional species listed in Table 2. The functions and values assessment focuses on those areas (if any) that should be considered for priority acquisition for the Conservation Area, as well as those functions that may affect downstream values related to conservation of Covered Species.

Table 1
Riparian / Riverine Areas and Vernal Pools Purpose Species*

Species Category	Species
Plants	Brand's phacelia (*Phacelia stellaris*)
	California Orcutt grass (*Orcuttia californica*)
	California black walnut (*Juglans californica* var. *californica*)
	Coulter's matilija poppy (*Romneya coulteri*)
	Engelmann oak (*Quercus engelmannii*)
	Fish's milkwort (*Polygala cornuta* var. *fishiae*)
	graceful tarplant (*Holocarpha virgata* ssp. *elongata*)
	lemon lily (*Lilium parryi*)
	Mojave tarplant (*Deinandra mohavensis*)
	mud nama (*Nama stenocarpum*)
	ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*)
	Orcutt's brodiaea (*Brodiaea orcuttii*)
	Parish's meadowfoam (*Limnanthes alba* ssp. *parishii*)
	prostrate navarretia (*Navarretia prostrata*)
	San Diego button-celery (*Eryngium aristulatum* var. *parishii*)
	San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*)
	San Miguel savory (*Clinopodium chandleri*)
	Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*)
	slender-horned spine flower (*Dodecahema leptoceras*)
	smooth tarplant (*Centromadia pungens* ssp. *laevis*)
	spreading (Moran's) navarretia (*Navarretia fossalis*)
	thread-leaved brodiaea (*Brodiaea filifolia*)
	vernal barley (*Hordeum intercedens*)
Invertebrates	Riverside fairy shrimp (*Streptocephalus woottoni*)[1]
	vernal pool fairy shrimp (*Branchinecta lynchi*)[1]
Fish	Santa Ana sucker (*Catostomus santaanae*)
Amphibians	arroyo toad (*Anaxyrus californicus*)
	(Southern) mountain yellow-legged frog (*Rana mucosa*)
	California red-legged frog (*Rana draytonii*)
Birds	bald eagle (*Haliaetus leucocephalus*)
	least Bell's vireo (*Vireo bellii pusillus*)[1]
	peregrine falcon (*Falco peregrinus*)
	southwestern willow flycatcher (*Empidonax traillii extimus*)[1]
	western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)[1]

[1] If suitable habitat for the noted species is identified and those habitats cannot be avoided, focused surveys for those species shall be conducted, and avoidance and minimization measures implemented in accordance with the species-specific objectives for those species found in Section 9 of the MSHCP.

*MSHCP (Section 6.1.2) Species

Volume 1, Section 9.2 and Volume II, Section B, Species Accounts of the MSHCP (Riverside County 2003) also states that the Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools policies presented in Section 6.1.2 of the MSHCP, Volume I shall also be implemented for the benefit of the following additional species:

Table 2
Section B Riparian / Riverine Areas & Vernal Pools Species

Species Category	Species
Plants	California muhly (*Muhlenbergia californica*)
	Coulter's goldfields (*Lasthenia glabrata* ssp*. coulteri*)
	Davidson's saltscale (*Atriplex serenana* var. *davidsonii*)
	little mousetail (*Myosurus minimus* ssp*. apus*)
	Parish's brittlescale (*Atriplex parishii*)
	Wright's trichocoronis (*Trichocoronis wrightii* var*. wrightii*)
Invertebrate	Santa Rosa Plateau fairy shrimp (*Linderiella santarosae*)[1]
Fish	arroyo chub (*Gila orcuttii*)
Amphibians	coast range newt (*Taricha torosa*)
	western spadefoot (*Spea hammondii*)
Reptile	western pond turtle (*Emys marmorata pallida*)
Birds	American bittern (*Botaurus lentiginosus*)
	black-crowned night heron (*Nycticorax nycticorax*)
	black swift (*Cypseloides niger*)
	Cooper's hawk (*Accipiter cooperii*)
	double-crested cormorant (*Phalacrocorax auritus*)
	downy woodpecker (*Picoides pubescens*)
	Lincoln's sparrow (*Melospiza lincolnii*)
	MacGillivray's warbler (*Geothlypis tolmiei*)
	Nashville warbler (*Oreothlypis ruficapilla*)
	osprey (*Pandion haliaetus*)
	purple martin (*Progne subis*)
	tree swallow (*Tachycineta bicolor*)
	tricolored blackbird (*Agelaius tricolor*)
	white-faced ibis (*Plegadis chihi*)
	white-tailed kite (*Elanus leucurus*)
	Wilson's warbler (*Wilsonia pusilla*)
	yellow-breasted chat (*Icteria virens*)
	yellow warbler (*Dendroica petechia brewsteri*)

[1] If suitable habitat for the noted species is identified and those habitats cannot be avoided, focused surveys for those species shall be conducted, and avoidance and minimization measures implemented in accordance with the species-specific objectives for those species found in Section 9 of the MSHCP.

*MSHCP (Volume II) Species

When riparian/riverine areas and vernal pools are identified, they are avoided to the extent feasible. When avoidance is not feasible, the potential direct and indirect impacts are minimized to the extent feasible. Unavoidable impacts are mitigated such that lost functions and values as related to conservation of Covered Species are replaced by equivalent or superior preservation as described in this DBESP.

Assessments of riparian/riverine/vernal pool resources and the results will be discussed below.

2.2.2 DBESP REPORT REQUIREMENTS

A habitat assessment and a jurisdictional delineation were conducted to determine presence of MSHCP defined riparian/riverine areas, vernal pools, and/or conservation areas and covered species identified as being associated with such areas on the project site. The results determined that there would be unavoidable impacts to some of those resources, so this DBESP report was required. This DBESP report will demonstrate how lost functions and values of riparian/riverine and vernal pool habitats will be replaced, as they relate to those MSHCP elements. Requirements for this report set forth in the MSHCP document (Riverside County 2003, Section 6.1.2, pages 6-24 and 6-25) include:

- Definition of the project area.
- A written project description, demonstrating why an avoidance alternative is not possible.
- A written description of biological information available for the project site including the results of resource mapping.
- Quantification of unavoidable impacts to riparian/riverine areas and vernal pools associated with the project, including direct and indirect effects.
- A written description of project design features and mitigation measures that reduce indirect effects, such as edge treatments, landscaping, elevation difference, minimization and/or compensation through restoration or enhancement.
- A finding demonstrating that, although the proposed project would not avoid impacts, with proposed design and compensation measures, the project would be biologically equivalent or superior to that which would occur under an avoidance alternative without these measures, based on one or more of the following factors:

    1. Effects on Conserved Habitats;
    2. Effects on the species listed under “Purpose” in Section 6.1.2; and,
    3. Effects on riparian linkages & functions of the MSHCP Conservation Area.

3.0 EXISTING CONDITIONS (RESULTS)

3.1 Environmental Setting

The study area is currently undeveloped with no existing structures. It is dominated by non-native grassland with ephemeral drainages containing sparse riparian vegetation and a small isolated ponded area. The study area appears to be regularly mowed for fire control purposes. Surrounding land uses include preserved open space to the west as part of Sycamore Canyon Wilderness Park, warehouses to the east and south, and single-family residential to the north.

3.2 Topography

The project site gently slopes from northwest to south. The highest elevation on the site is approximately 1,620 feet above mean sea level (AMSL) near the northwest corner of the project site. The lowest elevation is approximately 1,530 feet AMSL at the south-central boundary (see Figure 2).

3.3 Hydrology and Riparian/Riverine Resources

The average rainfall for the area is 8.2 inches per year with no average snowfall (Western Regional Climate Center, 2015). Weather data was recorded at the nearby March Field, approximately 4 miles southeast of the project site.

Storm flows and nuisance flows enter the project site from an underground culvert northwest of the project site. Standing water was observed immediately downstream of the culvert, but percolates prior to any flows entering the project site. Surface flows likely enter the project during and immediately following large storm events. Therefore, the drainage feature on-site is considered an ephemeral drainage.

Runoff from the site exits near the south-central boundary and flows within a paved commercial development prior to entering a natural drainage and the MSHCP conservation area approximately 1,400 feet southwest of the project site. The flow continues in natural drainage features for approximately 1.5 miles before entering a golf course and otherwise urbanized setting. The drainage is then conveyed through flood control devices for approximately 4.5 miles before entering the Santa Ana River Channel. The Santa Ana River continues west and eventually discharges into the Pacific Ocean between Huntington Beach and Newport Beach.

The primary drainage, which enters the site near the northwestern corner and exits at the south boundary, is a USGS designated blue-line stream. Both the underground culvert where flow enters the site and the paved commercial development where flow exits the site were originally part of this same blue-line system. Small, ephemeral drainage features, tributary to the blue-line drainage, are contained entirely on-site.

Riparian/riverine areas are located throughout the on-site drainages (Figure 4). Appendix C, Site Photographs, shows the conditions of the on-site riparian/riverine areas. For the purposes of this report, riparian/riverine acreage has been considered equivalent to California Department of Fish and Wildlife (CDFW) jurisdictional acreage.

3.4 Soils

The United States Department of Agriculture, Natural Resources Conservation Service (USDA) maintains an online searchable soils database, the Web Soil Survey (USDA, 2015a), which was consulted during the project literature search in order to determine the soil associations and soil types occurring on the project site. The following mapping units occur on the site (Figure 5):

- Cienaba sandy loam, 8 to 15 percent slopes, eroded (ChD2)
- Cienaba sandy loam, 15 to 50 percent slopes, eroded (ChF2)
- Fallbrook sandy loam, 8 to 15 percent slopes, eroded (FaD2)
- Fallbrook fine sandy loam, shallow, 8 to 15 percent slopes, eroded (FkD2)
- Hanford coarse sandy loam, 2 to 8 percent slopes (HcC)
- Vista coarse sandy loam, 8 to 15 percent slopes, eroded (VsD2)

USDA (2014) does not list any of the soils within the project site as hydric soils. None of these soils are known to be specifically associated with sensitive biological resources.

3.5 Vegetation

Riparian habitat (Figure 6) associated with the drainage features on-site includes red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), Goodding's black willow (*Salix gooddingii*), narrow-leaf willow (*Salix exigua*), Fremont cottonwood (*Populus fremontii, subsp. fremontii*), and mule fat (*Baccharis salicifolia*). Species nomenclature follows The Jepson Manual, Vascular Plants of California, 2nd Edition (Baldwin, 2012). When The Jepson Manual does not list a common name, common name nomenclature follows the USDA Plants Database (USDA, 2015b). None of the riparian/riverine "purpose" plant species listed in Table 1 were found or are expected on-site. Appendix A includes a list of all plant species observed.

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Riparian/Riverine
Sycamore Canyon Business Park Warehouse Project

FIGURE
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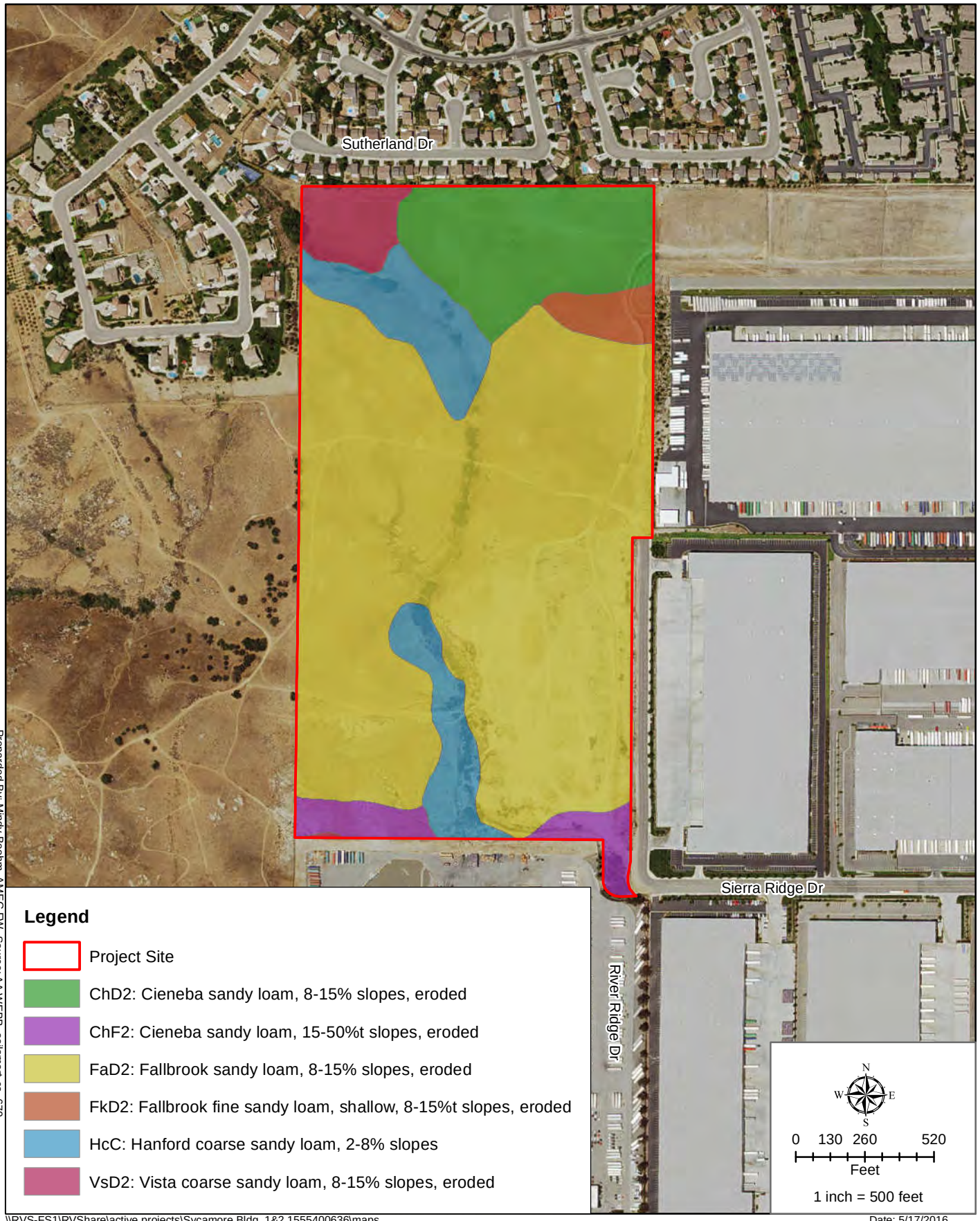

Prepared By: Mindy Beohm, AMEC FW Source: AA WEBB, soilsmart-ca 679

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Soils Map
Sycamore Canyon Business Park Warehouse Project

FIGURE
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Vegetation Communitites Map
Sycamore Canyon Business Park Warehouse Project

FIGURE
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3.6 Wildlife Species

Expected wildlife such as common side-blotched lizard (*Uta stansburiana*), red-tailed hawk (*Buteo jamaicensis*), common raven (*Corvus corax*), California ground squirrel (*Spermophilus beecheyi*), and desert cottontail (*Sylvilagus audubonii*) inhabit the site. Three sensitive species were seen (see Appendix B for the complete list of vertebrate species observed), but none of the "purpose" species listed in Table 1 were observed. Habitat is present for several of the animal species from Table 1, however. Fairy shrimp may potentially occur in the isolated ponded area seen on Figure 4, photo point 4. Southwestern willow flycatcher and least Bell's vireo habitat is present in the form of the wooded portions of the on-site drainage. Based on 2015/2016 protocol surveys, listed Fairy Shrimp (Rocks Biological 2016), southwestern willow flycatcher, and least Bell's vireo (MBI 2015) are considered absent from the project site.

3.7 MSHCP Conservation Area

The project site is immediately adjacent to the MSHCP conservation area, in the form of the Public/Quasi Public (PQP) Sycamore Canyon Wilderness Park, designated as Existing Core D by the plan (Figure 3). The site itself is not part of the conservation area or part of a criteria cell proposed to be added to the conservation area. The site, bordered on three sides by development, does not contribute to any wildlife corridor or linkage. On-site waters, however, do flow directly into the conservation area after passing through the commercial development immediately south of the site. The functions fulfilled by the riparian/riverine areas on-site that provide benefits to on-site and downstream conservation areas include flood storage and flood flow modification, nutrient retention and transformation, and sediment trapping and transport.

4.0 UNAVOIDABLE IMPACTS

The proposed project involves the installation two large warehouse buildings and their associated infrastructure (see Figure 7). Preservation of the existing riverine/riparian system, which flows through the center of the site, is not feasible or compatible with the project. Functional warehouses could not be constructed while also preserving the existing system.

4.1 Quantification of Riparian/Riverine Impacts

The proposed project will result in the direct, permanent loss of 1.91 acres of riparian/riverine areas (Table 3) under the MHSCP. The ponded area (see photo point 4 on Figure 4) has not been included in the total, because although it is potential fairy shrimp habitat, it is not a vernal pool or a part of the riparian/riverine drainage system. The ponded area is isolated as a result of human disturbance in an otherwise upland area. Therefore, the isolated ponded area is not associated with an independent drainage feature.

Table 3
Summary of Jurisdictional Areas

Drainage ID	U.S. Army Corps of Engineers (USACE) Jurisdiction (acres)	WSC and CDFW Jurisdiction (acres)	(MSHCP Riparian/ Riverine Areas)	Length (feet)	Latitude/ Longitude	Cowardin Class	Class of Aquatic Resource
Drainage 1	0.39	1.65	1.65	3,112	33.938589/ -117.307570	R4SBJ	non-section10 -non wetland
Drainage 2	0.02	0.02	0.02	626	33.938487/ -117.308406	R4SBJ	non-section10 -non wetland
Ponded Area	0.00	0.21	0.00	(80)	33.935623/ -117.306729	R4SBJ	non-section10 -non wetland
Isolated Riparian Habitat	0.00	0.24	0.24	(165)	33.935005/ -117.305659	R4SBJ	non-section10 -non wetland
Total	0.41	2.12	1.91	3,738	n/a	n/a	n/a

WSC – Waters of the State of California
CDFW – California Department of Fish and Wildlife
R4SBJ – Riverine, Intermittent, Streambed Intermittently Flooded based on Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et. al., 1979).

The feature was artificially created and not currently used for the purposes of creating wetlands habitat or open water, the ponded area does not qualify as a Riparian/Riverine feature (MSHCP Section 6.1.2). The direct loss of riparian/riverine areas within the site will include the riparian vegetation as well as the functions and values associated with the existing drainages.

4.2 Impacts on the MSHCP Conservation Area

The on-site drainages currently convey water indirectly into the Sycamore Canyon Conservation Area. Currently, urban run-off is collected in an underground storm drain from a residential development to the northwest. These flows exit the underground storm drain, just upstream of the project site at a velocity of 34 cubic feet per second (cf/s). Flows enter the project site from a residential development to the north's storm water drainage system into a relatively undisturbed earthen channel with clearly defined bed and bank features. The unpaved drainage acts as a filter for potentially contaminated water flowing from the upstream residential development. The natural contours of the drainage may also serve to slow storm water flow and decrease the potential for erosion.

The flows leave the project site and flow directly onto a paved parking lot of the southerly commercial development at approximately 130 cf/s. Flows are collected within an existing 120-inch diameter underground storm drain, which outlets directly into a water quality basin before it enters into Sycamore Canyon Wilderness Park via a natural drainage.

The proposed project will direct and convey the flows from the storm drain system from the residential development to the northwest of the project site into a series of riparian swales (bottom widths ranging from 10 feet to 25 feet) located along the western boundaries of the project. The flows will then discharge across a rip rap outlet structure located near the southwestern corner of the site into a new on-site underground storm drain system and a new storm drain to be constructed southerly in Lance Avenue (along the project frontage) and in an easement to be obtained that will connect to the existing 120-in diameter storm drain in Eastridge Avenue. (Figure 7). On-site storm flows will be collected within a private underground storm drain system and the new conveyed to a public storm drain that will connect to the existing 120-inch diameter storm drain in Eastridge Avenue.

After development, the flows leaving the project site are calculated to be 188 cf/s. Indirect impacts associated with the loss of the current functions and values could include changes in water quality and increased intensity of stormwater flows; however the drainage feature on-site will treat and clean the stormwater discharged from the site prior to release into the Sycamore Canyon Wilderness Park.

4.3 Protection of Species Associated With Riparian/Riverine Areas and Vernal Pools

4.3.1 Plants

None of the plants listed in Tables 1 and 2 have been found or are expected on the project site, and the project is not within any MSHCP designated plant survey area.

4.3.2 Vernal Pools / Fairy Shrimp

No natural vernal pool habitats are present on-site, only a man-made depression which ponds water. It is possible, but unlikely, that the fairy shrimp species listed in Table 1 could occur in this man-made depression. A protocol survey began on October 19, 2015, immediately following the initial inundation of the ponded area (Rock 2016). Surveys were conducted every two weeks until the pond dried up. Surveys began immediately following the second inundation, as required by the protocol. To date, 27 fairy shrimp surveys were conducted in the man-made depression between October 19, 2015 and May 10, 2016. No fairy shrimp were observed during 12 of the surveys, versatile fairy shrimp (*Branchinecta lindahli)* were observed during 10 of the surveys, the pond was dry during four of the surveys, and nauplii were present during one survey. No listed fairy shrimp were observed during these surveys and the required 90-day report of findings is being prepared for submittal. Since the ponded area is not a vernal pool or hydrologically connected to any on-site drainage by surface flows, it will not be discussed further as a riverine/riparian or vernal pool issue.

4.3.3 Fish

There is no fish habitat on-site.

4.3.4 Amphibians

The project is not in any MSHCP designated survey areas for amphibians. Of the species in Tables 1 and 2, potential habitat (the ponded area) is present for only one species, the western spadefoot. The spadefoot is a covered species, adequately conserved under the MSHCP.

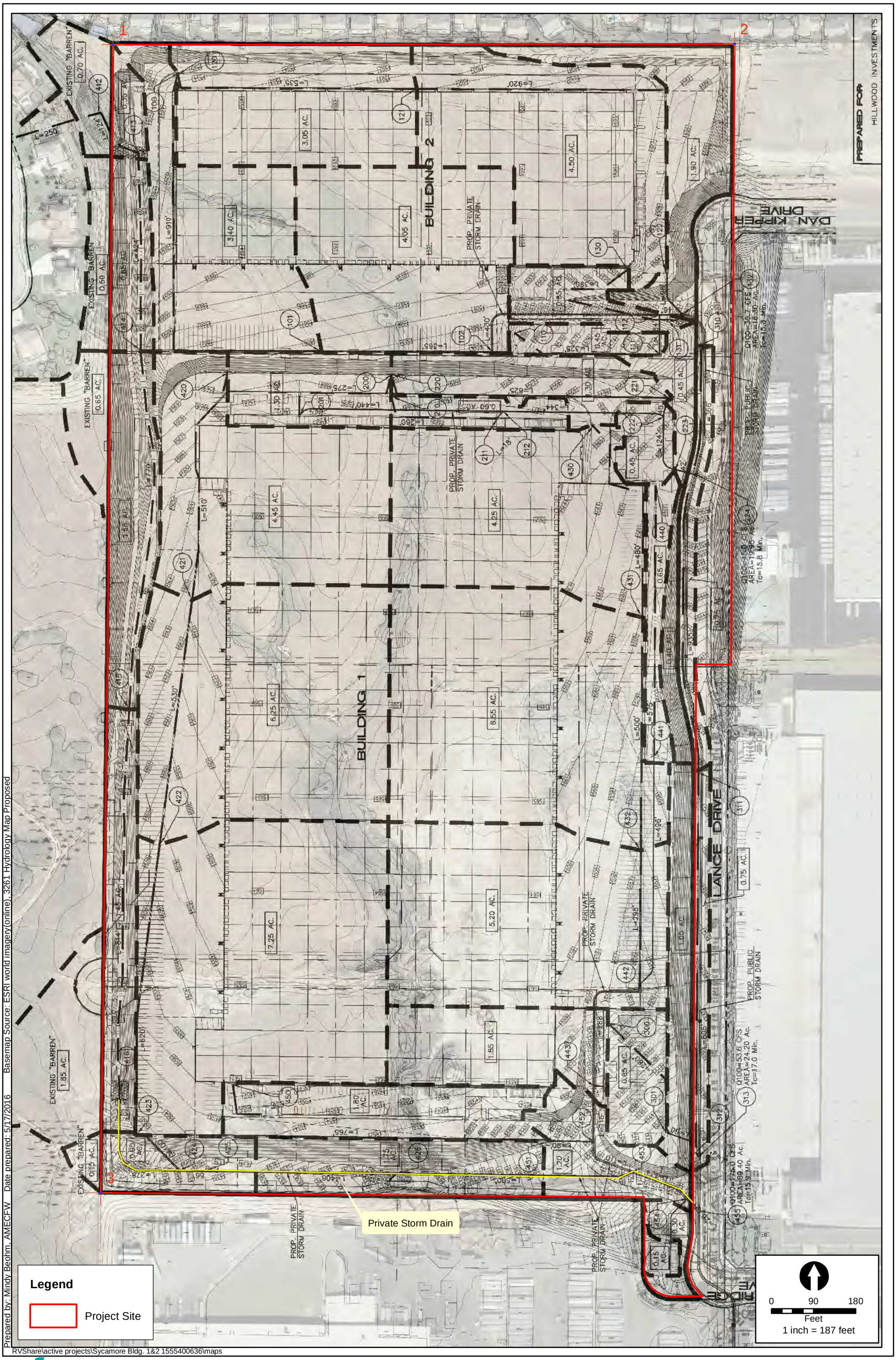
4.3.5 Birds

Potential nesting habitat is present for seven avian species listed in Tables 1 and 2: Cooper's hawk, downy woodpecker, white-tailed kite, yellow-breasted chat, yellow warbler, southwestern willow flycatcher, and least Bell's vireo. The first five are covered species, adequately conserved under the MSHCP, which will be further protected by measures taken to comply with the migratory bird treaty act. Therefore, they will not be discussed further as a riverine/riparian issue.

The southwestern willow flycatcher (SWFL) and least Bell's vireo (LBV) are species, which require surveys in appropriate MSHCP habitat. Michael Baker International conducted USFWS protocol surveys for these two endangered riparian-nesting birds during the 2015 nesting season. Based on the surveys, no LBV or SWFL were observed and are currently

considered absent from the project site. No yellow-billed cuckoo or brown-headed cowbirds were incidentally detected. There is a large population of LBV within the adjacent Sycamore Canyon Wilderness Park, and although currently presumed absent from the project site, they could inhabit the site in the future.

Project construction should be conducted outside of the nesting season for LBV and WIFL (between March 15 and September 15). Although currently considered absent, the suitable habitat within the project site and the close proximity of known recorded populations of these species makes it nearly impossible to rule out the possibility of occurrence. Therefore, if construction activities must be conducted within the nesting season, a nesting bird survey will be required to identify. If either of these birds are present on-site, species-specific measures must be taken, as identified in Section 9.2, Table 9-2 of the MSHCP (Riverside County, 2003). If nesting LBV or SWFL are found during the surveys, and greater than 10% of the suitable habitat will be impacted, offsite mitigation will be required and its conservation value documented in a Determination of Biological Equivalent or Superior Preservation analysis (Michael Baker International 2015).



Prepared by: Mindy Beohm, AMECFW Date prepared: 5/17/2016 Basemap Source: ESRI world imagery(online), 3261 Hydrology Map Proposed

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Proposed Condition Hydrology Map
Sycamore Canyon Business Park Warehouse Project

FIGURE 7

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5.0 PROJECT DESIGN FEATURES/MITIGATION MEASURES

5.1 Direct Impacts

5.1.1 Vegetation Communities

The proposed project will result in 1.91 acre of permanent impacts to the riparian/riverine areas found within the project site. Per discussions with the resource agencies during pre-application meetings on 9 December 2015 and 10 February 2016, the proposed 1.91-acre permanent impact to riparian/riverine areas will be mitigated through on-site habitat creation along the western edge of the project site.

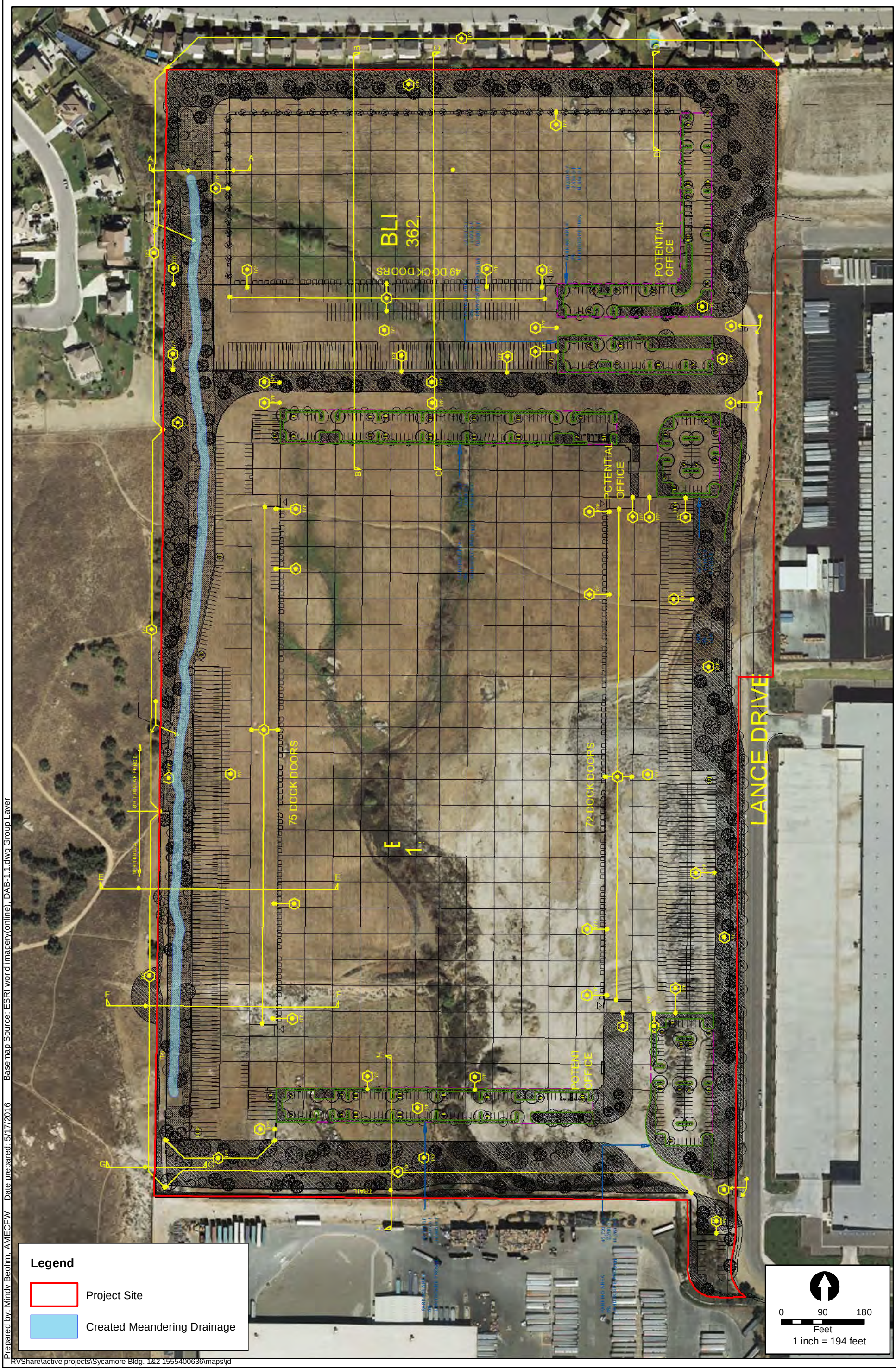
The habitat creation area, as currently designed, will vary from 52 to 72 feet wide with a length of 2008 linear feet totaling approximately 3.0 acres (Figure 8 and Appendix D). A 10 to 25-foot wide low-flow drainage feature will be constructed along the mitigation area. The drainage will meander within the mitigation area creating a natural sinuosity to represent a natural occurring drainage. The active channel will be approximately 0.50 acres and include in-kind replacement of non-wetland riparian scrub habitat.

Dominant vegetation in the riparian portion of the mitigation area will consist of California sycamore (*Platanus racemosa*) and arroyo willow (*Salix lasiolepis*). Understory vegetation within the riparian portion of the mitigation area will consist of mule fat (*Baccharis salicifolia*) and mugwort (*Artemisia californica*). The upland area adjacent to the riparian habitat will consist of coast live oaks (*Quercus agrifolia*), Mexican elderberry (*Sambucus mexicana*), toyon (*Heteromeles arbutifolia*), California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), and white sage (*Salvia apiana*).

The habitat creation area will be conserved in a conservation easement and will be managed with funds generated from a non-wasting endowment. The created habitat will be monitored by the project proponent for a minimum of 5 years; monitoring reports shall be provided to the City and RCA on an annual basis. The restoration area must meet standardized success criteria as described in the Habitat Mitigation and Monitoring Plan, which is required as part of the permit process for a Streambed Alteration Agreement with the California Department of Fish and Wildlife. Since project related impacts within the site will all be permanent, no temporary impacts will occur.

Project related mitigation measures associated with the impacts to riparian/riverine areas will not conflict with the mitigation measures required by the United States Army Corps of Engineers, Regional Water Quality Control Board, and CDFW as part of the regulatory permitting process. Following the installation of the mitigation, off-site flows will increase to approximately 188 cf/s. Since the drainage feature will be relocated along the western edge of the project site, it will maintain as a natural filter for potentially contaminated water flowing from the upstream residential development. The increased amount of flows (approximately 58 cf/s will be maintained within a channel that is wider than the current channel, which will reduce any significant erosion or scouring caused by an increase in flows. The amount of

project related direct and/or indirect impacts is relatively small, will be completely mitigated on-site, and will not have any significant down steam effects on conserved species.



Prepared by: Mindy Beohm, AMECFW Date prepared: 5/17/2016 Basemap Source: ESRI world imagery(online), DAB-1.1.dwg Group Layer

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amec foster wheeler

Site Plan
Sycamore Canyon Business Park Warehouse Project

FIGURE
8

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5.1.2 Wildlife Species

The only sensitive wildlife species detected utilizing the riverine areas was San Diego black-tailed jackrabbit. Impacts to this species is covered under the MSHCP and no project design changes or mitigation is proposed.

5.1.3 Riparian/Riverine Linkages

The proposed project does not involve any design features that would discourage or prohibit wildlife from utilizing Existing Constrained Linkage B and no mitigation is proposed.

5.1.4 MSHCP Conservation Area

The proposed project will not directly affect any MSHCP conservation area(s), but is immediately adjacent to an existing conservation area. Mitigation for permanent impacts to 1.91 acre of riparian/riverine will be made, as described in Section 5.1.1 of this report.

5.2 Indirect Impacts

Indirect impacts associated with the Urban/Wildlife Interface Guidelines shall be incorporated into the project design to ensure that indirect project-related impacts to the adjacent conservation area, such as those listed below, are avoided or minimized to the greatest extent feasible. These guidelines will be incorporated in the Habitat Mitigation Management Plan, which is typically prepared as part of the regulatory permitting process with CDFW.

5.2.1.1 Drainage

The project shall not create additional flows off-site. Measures will be taken to assure that the project stormwater discharges are no greater in volume and velocity than current undeveloped conditions and that the water leaving the site complies with all applicable water quality standards.

5.2.1.2 Toxics

In concert with drainage requirements, the project is subject to Riverside County Water Quality Management Plan (WQMP) for Urban Runoff, Santa Ana Region, Santa Margarita Region, adopted September 17, 2004 and the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) Water Quality Order 99-08-DWQ. Implementation of both the WQMP and the General Permit would reduce potential impacts of toxics to a level of less than significant to the MSHCP conservation area, including the Sycamore Canyon drainage in the Sycamore Canyon Wilderness Park and the Santa Ana River.

5.2.1.3 Lighting

Night lighting shall be directed away from the MSHCP Conservation Area (Sycamore Canyon Wilderness Park) so as to have no light spillage into the Conservation Area.

5.2.1.4 Noise

The project site is located in an area already subject to high ambient noise levels due to street traffic and adjacent residential and commercial development that already abut the Sycamore Canyon Wilderness Park conservation area. The completed project would not subject any riparian/riverine habitat with the MSHCP Conservation Area to noise above the existing ambient noise level. The construction site is well over 2,000 linear feet away from the riparian/riverine habitat within the MSHCP Conservation Area and temporary construction-related noise impacts would not negatively impact riparian/riverine resources within the Conservation Area.

5.2.1.5 Invasive Plant Species

No invasive species from MSHCP Table 6.2 shall be included in any landscaping for the project.

5.2.1.6 Barriers

As needed, the project should include the incorporation of rocks/boulders, fencing, walls, signage, and or other appropriate measures to minimize unauthorized public access, domestic animal predation, and illegal trespass and dumping into the MSHCP Conservation Area (Sycamore Canyon Wilderness Park). Any barriers shall be outside of the MSHCP Conservation Area.

5.2.1.7 Grading/Land Development

Project-related grading will be outside of the MSHCP Conservation Area.

5.2.1.8 Fuels Management

No fuel management would be necessary for this project.

5.2.2 Temporary Indirect Impacts

Noise resulting from project grading and construction has potential to cause indirect adverse effects to biological resources within the conservation area of Sycamore Canyon. There were three sensitive species detected within the project site during the survey, San Diego black-tailed jackrabbit, horned lark, and golden eagle. It is highly likely that the San Diego black-tailed jackrabbit and horned lark occur within the adjacent conservation area due to the contiguous habitat that extents off-site into the conservation area. These species are highly mobile and are not likely adversely impacted by temporary indirect impacts

associated with project construction during the non-breeding season (typically September to January). The golden eagle was observed flying over the project site and would only utilize the project site and adjacent conservation area for foraging.

These sensitive species, as well as nesting migratory birds, protected under the Migratory Bird Treaty Act, may be affected by construction noise. Therefore, mitigation will consist of scheduling the project outside of the breeding season (typically from February to August) or requiring a pre-construction survey prior to ensure that no sensitive wildlife species or active nests occur within 250-feet of the project site. If sensitive species or nesting birds are observed within the vicinity of the project (within 250 feet), a biological monitor may be required. Construction activity may encroach within the 250-foot buffer area at the discretion of the biological monitor in consultation with the CDFW. Sound barriers may be required if construction activities must enter the 250-foot buffer area and the sensitive species remain within the buffer area or prior to the nestlings fledging the nest. The Sycamore Canyon riparian habitat is located more than 2,000 linear feet from the edge of the project site, and therefore is not likely to have temporary indirect impacts.

5.2.3 Permanent Indirect Impacts

There are no design features of the proposed project that will cause indirect impacts after the project is installed and therefore, no mitigation for permanent indirect impacts is proposed.

6.0 DETERMINATION OF BIOLOGICALLY EQUIVALENT OR SUPERIOR PRESERVATION

The proposed project contains an ephemeral drainage system that will be impacted by the project. The existing drainage offers riparian/riverine functions and values, which benefit the Conservation Area (Sycamore Canyon Wilderness Park), including flood storage and flood flow modification, nutrient retention and transformation, and sediment trapping and transport. To mitigate for the loss of these functions and values, an on-site drainage feature will be created along the western edge of the project site. The existing drainage consists primarily of unvegetated channel with isolated patches of willow scrub habitat. The created drainage feature will consist of a low-flow channel dominated by willow riparian scrub habitat (0.50 acres) with upland scrub and oaks along the upper banks (an additional 2.50 acres). The created mitigation habitat is considered superior habitat in comparison to the existing drainage because it will: continue to convey the run-off from the residential development to the northwest of the project site, it will be planted with native riparian and riparian scrub habitat, it will meander like a naturally occuring drainage, and it will provide better quality habitat for nesting birds. The proposed drainage will reduce excessive erosion and provide natural biological filtration for upstream pollutants associated with the adjacent residential development.

A Habitat Mitigation Management Plan will be prepared and submitted to the City and RCA for review, which will describe the habitat creation and establish success criteria that will extend five years from the start of the habitat creation effort. Success criteria will include 85% percent coverage of the existing riparian habitat, no more than 10% cover of non-native species, and reduction of supplemental watering during the last two years of monitoring. The mitigation area will be managed in perpetuity by a non-wasting endowment and protected by a conservation easement. With these measures, the proposed project will be consistent with MSHCP Section 6.1.2 (Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools), and will result in equivalent or superior preservation of riparian/riverine resources over those that will be impacted by the project.

7.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological assessment, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

17 May 2016	17 May 2016
John Green Date	Scott Crawford Date
Senior Biologist	Biology Group Manager

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APPENDIX A

PLANT SPECIES LIST

APPENDIX A

PLANT SPECIES LIST

This list reports only plants observed on the site by this study. Other species may have been overlooked or undetectable due to their growing season. Plants were identified from keys, descriptions, and drawings in Baldwin et al (ed.) 2012 and Munz 1974.

MAGNOLIOPHYTA: MAGNOLIOPSIDA	**DICOT FLOWERING PLANTS**
Amaranthaceae	**Amaranth family**
*Amaranthus albus**	Tumbling (white) pigweed
Anacardiaceae	**Sumac family**
*Schinus molle**	Peruvian pepper tree
Asteraceae	**Sunflower family**
Baccharis salicifolia	Mule fat
*Centaurea solstitialis**	Yellow star-thistle
Conyza canadensis	Canadian horseweed
*Cotula coronopifolia**	African brass-buttons
Deinandra paniculata	Paniculate tarplant
Encelia farinosa	Brittlebush
Filago californica	California filago
Helianthus annuus	Common sunflower
Heterotheca grandiflora	Telegraph weed
Stephanomeria virgata	Tall wreath-plant
Boraginaceae	**Borage family**
Amsinckia intermedia	Common fiddleneck
Heliotropium curassavicum	Salt heliotrope
Brassicaceae	**Mustard family**
*Hirschfeldia incana**	Shortpod mustard
Cactaceae	**Cactus family**
Cylindropuntia californica var. *parkeri*	Valley cholla
Chenopodiaceae	**Saltbush family**
*Salsola tragus**	Russian thistle
Elaeagnaceae	**Oleaster family**
*Elaeagnus angustifolia**	Russian olive
Euphorbiaceae	**Spurge family**
Chamaesyce albomarginata	Rattlesnake weed
Croton setigerus	Dove weed
Fabaceae	**Pea family**
Acmispon glaber	Common deerweed, California broom
Geraniaceae	**Geranium family**

*Erodium botrys**	Longbeak stork's bill
*Erodium cicutarium**	Redstem stork's bill
Lamiaceae	**Mint family**
Trichostema lanceolatum	Vinegar weed
Polygonaceae	**Buckwheat family**
Eriogonum fasciculatum	California buckwheat
Rhamnaceae	**Buckthorn family**
Ceanothus sp.	Ceanothus
Salicaceae	**Willow family**
Populus fremontii	Fremont cottonwood
Salix lasiolepis	Arroyo willow
Simaroubaceae	**Quassia family**
*Ailanthus altissima**	Tree of heaven
Solanaceae	**Nightshade family**
*Nicotiana glauca**	Tree tobacco
Tamaricaceae	**Tamarisk family**
Tamarix sp.*	Tamarisk
MONOCOTYLEDONEAE	**MONOCOT FLOWERING PLANTS**
Poaceae	**Grass family**
*Avena barbata**	Slender wild oat
*Avena fatua**	Wild oat
Avena sp.*	Oat
*Bromus diandrus**	Ripgut brome
Bromus madritensis ssp. *rubens**	Red brome
*Bromus madritensis**	Foxtail chess
Salix gooddingii	Goodding's Black willow

SYMBOLS AND ABBREVIATIONS:

* = Non-native (introduced) species
** = sensitive species
sp. = Plant identified only to genus
ssp. = Subspecies

APPENDIX B

VERTEBRATE ANIMALS SPECIES LIST

APPENDIX B

VERTEBRATE ANIMALS SPECIES LIST

This list reports only animals or their sign observed during AMEC's site visit. Burrows of unidentified small mammals are not included. Other species may have been overlooked or undetectable due to their nocturnal and/or subterranean activity patterns. Nomenclature and taxonomy for fauna observed generally follows the American Ornithologists' Union Checklist and its supplements (2015) for avifauna, CDFG (2006) for mammals, and Center for North American Herpetology (2015) for herpetofauna.

REPTILIA	**REPTILES**
Phrynosomatidae	**Phrynosomatid Lizards**
Sceloporus occidentalis longipes	Great Basin fence lizard
Uta stansburiana	Common side-blotched lizard

AVES	**BIRDS**
Cathartidae	**American Vultures**
Cathartes aura	Turkey vulture
Accipitridae	**Kites, Hawks, and Eagles**
Buteo jamaicensis	Red-tailed hawk
***Aquila chrysaetos*	Golden eagle
Falconidae	**Falcons**
Falco sparverius	American kestrel
Charadriidae	**Plovers and Lapwings**
Charadrius vociferus	Killdeer
Columbidae	**Pigeons and Doves**
Zenaida macroura	Mourning dove
Trochilidae	**Hummingbirds**
Calypte anna	Anna's hummingbird
Tyrannidae	**Tyrant Flycatchers**
Sayornis nigricans	Black phoebe
Sayornis saya	Say's phoebe
Tyrannus verticalis	Western kingbird
Corvidae	**Crows and Ravens**
Corvus corax	Common raven
Alaudidae	**Larks**
***Eremophila alpestris*	Horned lark
Hirundinidae	**Swallows**
Stelgidopteryx serripennis	Northern rough-winged swallow
Aegithalidae	**Bushtits**
Psaltriparus minimus	Bushtit
Troglodytidae	**Wrens**
Thryomanes bewickii	Bewick's wren
Fringillidae	**Finches**
Carpodacus mexicanus	House finch
Carduelis psaltria	Lesser goldfinch

MAMMALIA	**MAMMALS**
LAGOMORPHA	***RABBITS, HARES AND PIKA***
Leporidae	**Rabbits and Hares**
***Lepus californicus*	San Diego black-tailed jackrabbit
Sylvilagus audubonii	Desert cottontail
RODENTIA	***RODENTS***
Sciuridae	**Squirrels**
Spermophilus beecheyi	California ground squirrel
Geomyidae	**Pocket Gophers**
Thomomys bottae	Botta's pocket gopher
Heteromyidae	**Pocket Mice and Kangaroo Rats**
Dipodomys sp.	Kangaroo rat
CARNIVORA	***CARNIVORES***
Canidae	**Foxes, Wolves and Dogs**
Canis latrans	Coyote

SYMBOLS AND ABBREVIATIONS:

sp. = Identified only to genus; species unknown plural = spp.
* = Non-native species
** = Sensitive species (State or Federally Listed as Threatened or Endangered, or a CDFW Species of Special Concern, Watch list, or a USFWS Bird of Conservation Concern)

APPENDIX C

PHOTOGRAPHS

Photo 1 – Looking north from the central portion of the drainage. Vegetation within the channel is limited to upland species, with the exception of a few mule fat species.

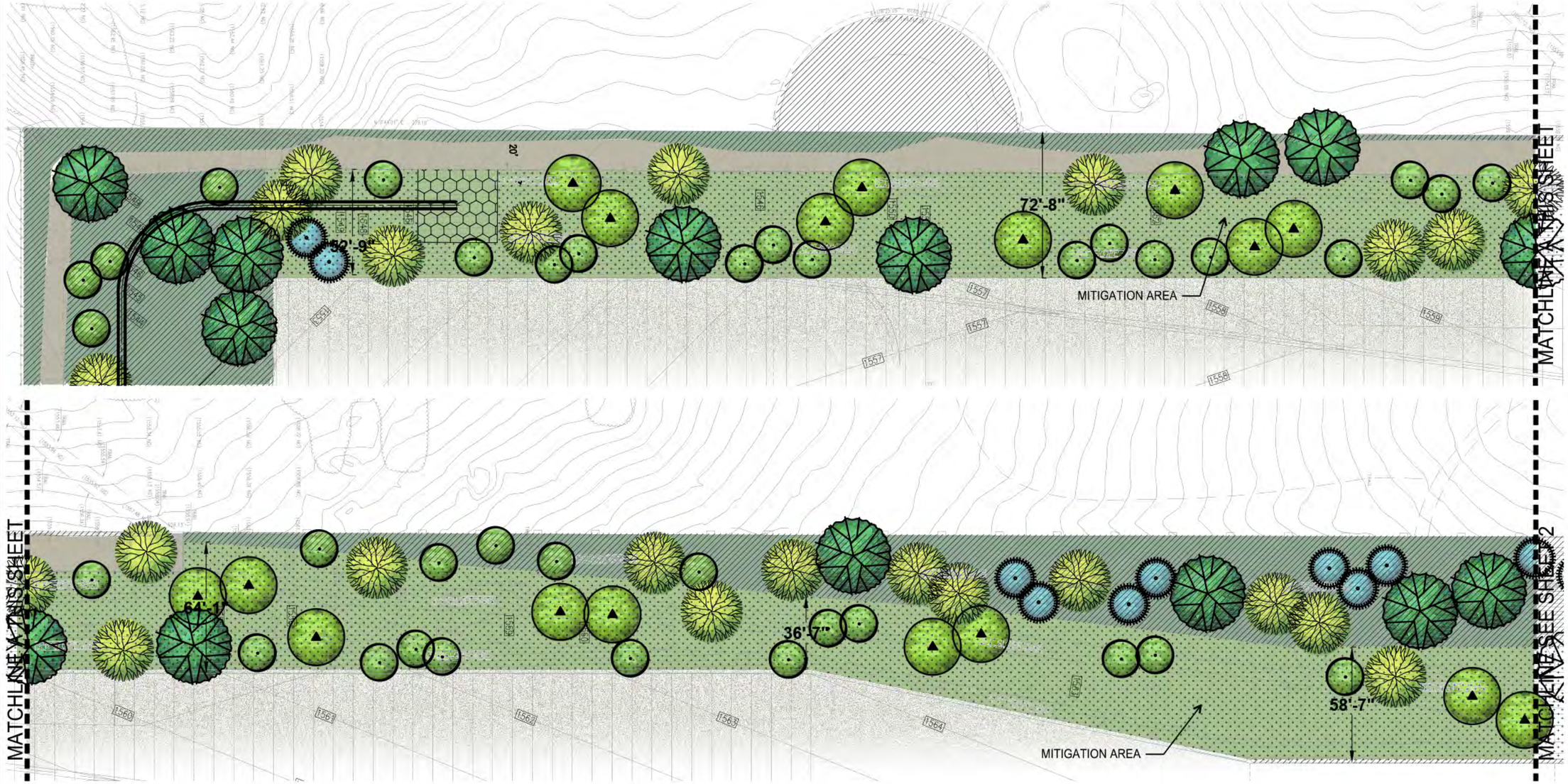
Photo 2 – Looking south at the southern portion of the project site. Riparian habitat was found to be present within this portion of the drainage.

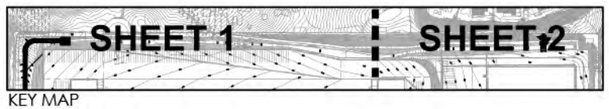
Photo 3 – Looking north at the downstream portion of the main drainage channel. The drainage at this location is dominated by mule fat and buckwheat.

Photo 4 -Looking west at an isolated ponded area located in the southern portion of the projects site

APPENDIX D

MITIGATION PLAN





KEY MAP

N

0 10 20 40'

SHEET 1 OF 2

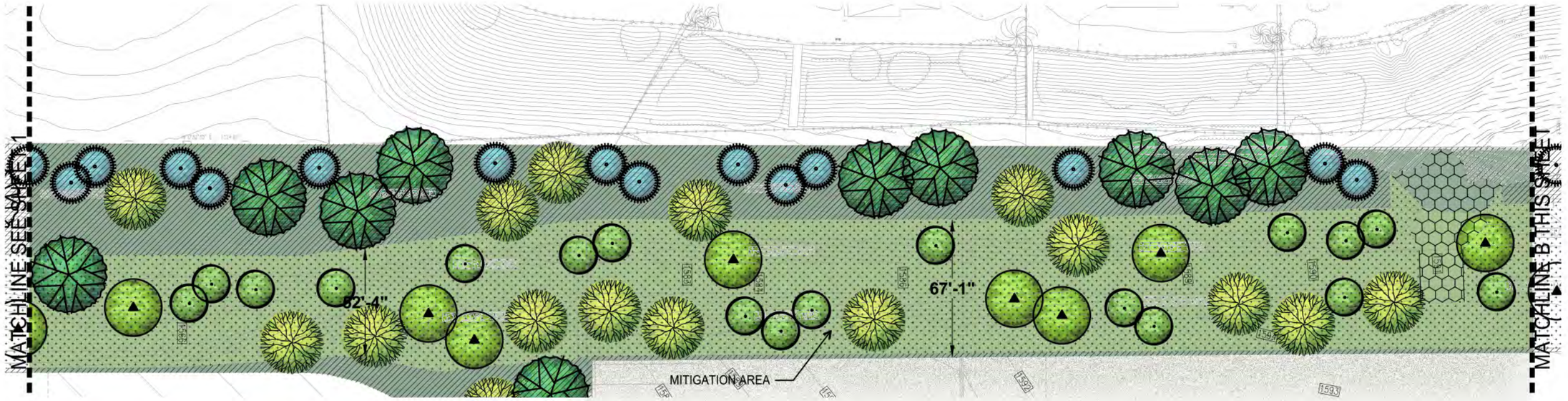
Hillwood

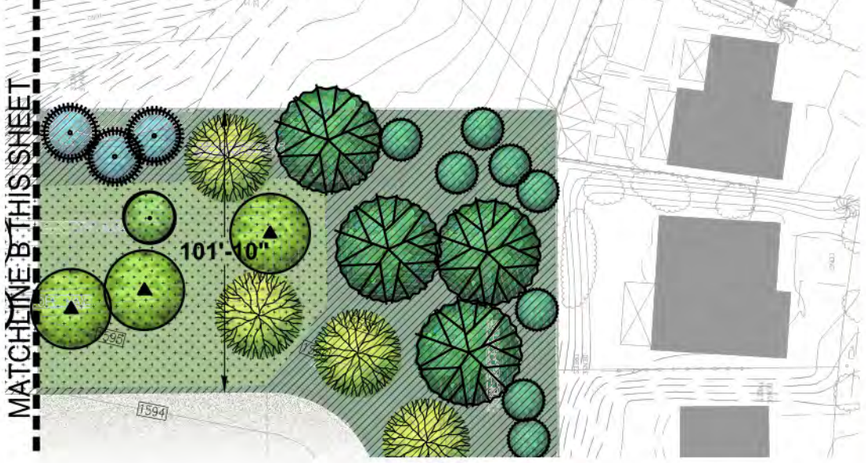
14-050
2.3.16

Sycamore Canyon

Riverside, California

HUNTER LANDSCAPE
711 FEE ANA STREET PLACENTIA, CA 92870
714.986.2400 FAX 714.986.2408





RIPARIAN AREA PLANTING LEGEND

TREES

SYMBOL	BOTANICAL/COMMON NAME	SIZE	QTY	WUCOLS	REMARKS
	Quercus agrifolia Coast Live Oak	24" Box	6	L	Standard
	Heteromeles arbutifolia Toyon	15 Gal	40	L	
	Platanus racemosa California sycamore	24" Box	24	L	Standard
	Salix lasiolepis Arroyo Willow	15 Gal	28	M	
	Sambucus mexicana Mexican Elderberry	15 Gal	2	L	

SHRUBS

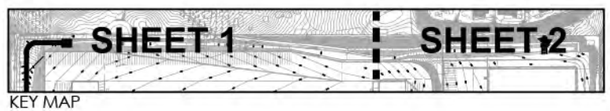
SYMBOL	BOTANICAL/COMMON NAME	SIZE	QTY	WUCOLS	REMARKS
	Cercocarpus betuloides Mountain Mahogany	5 Gal	48	L	
	Baccharis salicifolia Mule Fat	1 Gal	60	L	
	Rhamnus crocea Redberry	1 Gal	88	L	
	Cercocarpus betuloider Mountain Mahogany	5 Gal	48	L	
	Artemisia californica Mugwort	1 Gal	60	L	
	Atriplex canescens California Sagebrush	1 Gal	88	L	
	Salvia aptana White Sage	1 Gal	60	L	
	Salvia mellifera Black Sage	1 Gal	88	L	
	Eriogonum fasciculatum 'Foliolosum' California Buckwheat	1 Gal	88	L	

NATIVE HYDROSEED MIX

2500	lb/ac	wood cellulose fiber
300	lb/ac	15-15-15 commercial fertilizer
200	lb/ac	38-0-0 nitroform
80	lb/ac	stabilizing binder
8	lb/ac	Eriogonum fasciculatum 'Foliolosum'
6	lb/ac	Vulpia microstachys
6	lb/ac	Nassella pulchra/etipa
4	lb/ac	Lotus scoparius 'Brevialatus'
4	lb/ac	Plantago erecta
3	lb/ac	Encelia farinosa
2	lb/ac	Lupinus bicolor
2	lb/ac	Lotus strigosus 'Strigosus'
2	lb/ac	Artemisia californica
2	lb/ac	Eschscholzia californica
1	lb/ac	Lasthenia gracilis
1	lb/ac	Eriophyllum confertiflorum

TABULATION

MITIGATION AREA - 128,774 SF
SWALE LENGTH - 2008 LF
SWALE WIDTH - FROM 52'-9" LF TO 72'-10" LF



KEY MAP

N

0 10' 20' 40'

SHEET 2 OF 2

Hillwood

14-050
2.3.16

Sycamore Canyon

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