APPENDIX C – JOSHUA TREE INVENTORY

May 20, 2022
(21331)

Chad Stadnicki
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Subject: Results of the Joshua Tree Inventory Conducted for the Rancho Vista Development Project in the City of Palmdale, Los Angeles County, California

Dear Mr. Stadnicki:

This report has been prepared by Chambers Group, Inc. (Chambers Group) to document the results of the Joshua tree inventory survey conducted on March 15 of 2022 for LA-DF Investment Fund 78, LLC and Pacific Summit Tilbury, LLC for the Rancho Vista Development Project in the City of Palmdale, Los Angeles County, California. As of October 9, 2020, the western Joshua tree (*Yucca brevifolia*) has become a candidate species under the California Endangered Species Act (CESA), and thus is fully protected (California Department of Fish and Wildlife, CDFW 2020). Because of the recent candidate status of Joshua trees under CESA, the CDFW requires an Incidental Take Permit (ITP) for the impact of Joshua trees and their seed bank. If CDFW determines that a proposed project could impact a State listed threatened or endangered species, CDFW will provide recommendations for "reasonable and prudent" project alternatives. If proposed projects would result in impacts to a State listed species, an ITP pursuant to Section 2081 of the Fish and Game Code is necessary. The objective of this inventory is to qualify the present condition of all Joshua trees located within the approximately 59.03-acre area needed for construction of the Project to ensure compliance with CESA relating to the anticipated take of Joshua tree woodland.

Project Purpose and Background

LA-DF Investment Fund 78, LLC and Pacific Summit Tilbury, LLC (the Developer) proposes to re-subdivide three parcels totaling 52.17-acres into 243 lots to construct a single-family development tract (Tract 83674) (Project). The Project is located in the City of Palmdale (City), in Los Angeles County (County).

Project History

In 1986, the Rancho Vista Specific Plan was approved and the 1985 Environmental Impact Report (Ultrasystems 1985) was certified by the City. Tract 66868, designated as PA 8, was a proposed 278 residential condominium project within the Rancho Vista Specific Plan. Tract 53342, designated as PA 7, proposed 96 single family residential lot that was outside the Rancho Specific Plan. In 2016, PA 7 was annexed into the Rancho Specific Plan. The Project consists of a residential development combining tracts PA 7 and PA 8 which will have a total of 243 lots, which will be reduced amount to what was previously analyzed.

In 2022, an Addendum to the Specific Plan Amendment was prepared and approved by the City. The Addendum to the Specific Plan Amendment proposed a change in land use designation on PA 7 from Urban Residential to Urban Village Residential, and a change in the permitted uses to allow ‘Gold Course Community” Lot Standards.

Project Location and Description

The Project site is located on two undeveloped parcels at the northwest corner of Rancho Vista Boulevard and Tilbury Drive within the Rancho Vista Specific Plan. Regional access to the Project area will be through California State Route 14 and Rancho Vista Boulevard. Access to the Project site will be through a north entrance on Tilbury Drive and a south entrance on a future street south of Tilbury Drive and Rancho Vista Boulevard. One egress will be located along future street Montellano Avenue.

Single-family residences are located immediately north, south, and east of the Project site. Natural open space is located immediately west of the Project site, including the Governor Edmund G. Brown East Branch of the California Aqueduct that intersects the vacant land from north to south. A commercial plaza is approximately 0.2 mile southeast of the Project site on Rancho Vista Boulevard (Attachment 1: Figure 1). The Project site is sparsely vegetated and lined with streetlights west of Rancho Boulevard, and with a sidewalk and block wall to the east.

The Proposed Project will construct 243 single-family homes ranging from one to two-story residences. The overall Project site comprises 59.03-acres with elevation ranges from 2,717 to 2,879 feet above mean sea level (amsl). Native vegetation communities currently dominating the Project site include California Buckwheat Scrub, Fiddleneck - Phacelia Fields, Disturbed Fiddleneck - Phacelia Fields, Rubber Rabbitbrush Scrub, Disturbed Rubber Rabbitbrush Scrub, and Joshua Tree Woodland with California Juniper Woodland Association. Representative native species found within these communities include species such as Joshua tree (*Yucca brevifolia*), California juniper (*Juniperus californica*), California buckwheat (*Eriogonum fasciculatum*), Mojave desert California buckwheat (*Eriogonum fasciculatum* var. *poliofolium*), chaparral yucca (*Hesperoyucca whipplei*), green ephedra (*Ephedra viridis*), fiddleneck (*Amsinckia menziesii*), rubber rabbitbrush (*Ericameria nauseosa*), and native annuals such as slender woolly buckwheat (*Eriogonum gracile*), slender pectocarya (*Pectocarya linearis* subsp. *ferocula*), and angel gilia (*Gilia angelensis*). Non-native species observed include cheat grass (*Bromus tectorum*), oriental hedge mustard (*Sisymbrium orientale*), Mediterranean schismus (*Schismus barbatus*), and red-stemmed filaree (*Erodium cicutarium*).

Methods

The 2022 Joshua tree inventory of the Project site was conducted by Chambers Group botanists Heather Clayton and Jessica Calvillo on March 15, 2022 from 1100 to 1600 hours. The survey dates were selected to maximize detection of western Joshua tree fruit and ensure adherence to CDFW's (2018) Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. One-hundred percent (100%) visual coverage of the Project Site was achieved through closely spaced transects and views from higher elevation vantage points to ensure visual coverage of western Joshua tree across all age classes, size classes as well as plants of low stature. Representative site photographs were taken of the Project site (Attachment 1: Figure 2, Attachment 2) to visually document conditions at the time of the survey. Trees were inventoried within the limits of the Project site and given the age and branching structure; biologists speculate that it is highly unlikely that any of the western Joshua trees in the Project site were transplanted from another location (Attachment 1: Figure 3).

The following tasks were conducted during the inventory:

1. Each Joshua tree on site was evaluated using the health, size, age, and phenological development phase (Pheno. Phase) criteria detailed in Table 1, 2 and 3. Additional observations were recorded in regard to

specific tree conditions, number of branching terminal flower panicles, evidence of wildlife use, and proximity to roads (Table 4).

2. Each Joshua tree was given a tree identification (ID) number.
3. Soil characteristics on site were evaluated and classified.
4. Joshua trees of varying ages and conditions were mapped within the Survey Area. Global Positioning System (GPS) coordinates were recorded for each tree, and points were overlaid onto an aerial photograph including a 186-foot buffer and correspond to the tree ID numbers on the Tree Inventory Results table (Table 4; Attachment 1: Figure 3).
5. A vegetation communities map showing each Joshua tree and the community alliance and/or association, the total area of each vegetation community, and a corresponding table of species observed in each alliance have been provided (Table 5; Attachment 1: Figure 4).
6. Photographs were taken of each tree (Attachment 3, Attachment 3) along with representative photos of the site taken at photo stations (Attachment 1: Figure 2). Due to the vegetative homogeneity of the site and because not all areas of the proposed impact area contained Joshua trees, biologists were able to visually document all areas of the site from different aspects by establishing photo locations from high vantage points in the northern portion of the site, or from raised hummocks scattered throughout the site.
7. Survey transect lines were recorded and mapped using a GPS unit and representative site photographs were taken (Attachment 1: Figure 5; Attachment 2).

Table 1. Tree Inventory Evaluation Criteria for Health

Health	Description
Excellent	This determination was used for trees that had no signs of herbivory, yellowing leaves, or loss of branches. Leaves were green and erect. Branches were few to many and were generally relatively short. The canopy was generally relatively dense.
Good	This determination was used for trees that had little to no signs of herbivory, with most leaves green and erect, and no loss of branches. Generally, branches were relatively short and canopy relatively dense, but both conditions less so than under excellent.
Fair	This classification was assigned to trees that exhibited a mix of green and yellowing leaves, with some leaves drooping. Branches generally longer, with some branches drooping. Some signs of herbivory (stripped bark) or other signs of damage to tree (i.e., scars on trunk, one or two dead branches on the tree or on the ground). Generally open canopy.
Poor	Most leaves yellowing and drooping. Generally having longer branches, with many drooping branches. Signs of damage to trunk and branches, signs of herbivory. Open canopy, multiple dead branches on tree or on ground.
Dead	Trees with no sign of green leaves or new growth, all dead trees had fallen over and were lying on the ground. No mitigation is required for fallen dead trees.

Table 2. Tree Inventory Evaluation Criteria for Size and Age Class

Age Class	Maturity	Size Class	Height (Feet)
A	Seedling	0	< 2
B	Juvenile	1	2-5
C	Mature 1	2	6-10
D	Mature 2	3	11-15
E	Mature 3	4	16-20
F	Mature 4	5	21-30
OM	Over Mature (Having passed beyond the state of maturity; beginning to age or deteriorate)	6	>30, Signs of decline

Table 3. Tree Inventory Evaluation Criteria for Phenological Development Phase

Phase Abbreviation	Description of Phenological Development Phase
YL	young leaves
L	Leaves
F	Flowers
OF	open flowers
FR	Fruits
RFD	recent fruit drop

Rhizomatous Joshua Tree Clusters

Some Joshua trees have the ability to reproduce asexually by rhizomes, branch sprouts, and/or basal sprouts (Kliemann 1979; Simpson 1975). These rhizomes are typically 0.4 to 2 inches in diameter and grow horizontally approximately 3 feet from the parent plant before sending up aerial stems (Rowlands 1978). Stem damage, as well as certain environmental conditions, may encourage rhizome production and clonal growth (Webber 1953). It is common for dormant buds beneath the periderm to grow when old stems bend or stems are injured. Joshua trees with extensive rhizome growth and clonal form are typically shorter and have less branching than single-stemmed trees. In some cases basal buds do not develop into distinct rhizomes, and stems grow adjacent to the main stem as sprouts (Simpson 1975). Joshua trees drop seeds from the ends of their branches; thus, trunks greater than 3 feet away are typically treated as separate individuals.

As the Joshua tree has the ability to send out rhizomatous shoots from its base, several instances were observed where many Joshua trees appear to be growing clustered together. These have been determined to be a single

tree with multiple rhizomatous trunks. Each of these instances have been recorded and photographed (Table 4; Attachment 3). A total of four occurrences of rhizomatous individuals were recorded at the Project location.

Soils

Prior to conducting the surveys, soil maps from the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2022) were reviewed for soil types found within the Survey Area for the Antelope Valley area of Los Angeles County.

Results

A total of 8 Joshua trees (living and dead) are considered present within the Project site. Of the 8 trees observed, one was dead (Table 4). Natural recruitment of one new Joshua tree (No. 2) that likely established through germination of seed was observed within the Project site. This is in addition to four rhizomatous Joshua trees (No. 4 - 7) observed that were exhibiting asexual propagation and regeneration of healthy offshoots that could potentially support new individuals in the future if complete senescence of the parent plant occurs. Trees were mapped (Attachment 1: Figure 3) and photographed (Attachment 3). No other special status plant species were observed on site during the survey.

Table 4. Joshua Tree Inventory Results

Tree ID #	Size Class	Age Class	Health	Pheno. Phase	No. of Terminal Branching Panicles	Rhizomatous Exhibiting Clonal Growth	Impacted Tree	Additional Observations & Comments
1	3	D	Fair	F	4 fresh	-	No	Bark missing on half of lower trunk.
2	1	B	Good	L	-	-	No	Minor staining on leaves. Growing out from the middle of a California juniper's canopy.
3	2	-	**Dead**	-	-	-	No	Dead, next to California juniper, 4 feet away from tree No.2.
4	2	C	Good	L	-	4 stems	No	Cluster of 4 stems, one of which is 5 feet away.
5	2	C	Fair	L	1 old on dead branch	4 stems	No	One fallen branch and 2 small, clonal stems 2 feet away.
6	4	E	Good	F	12 fresh 24 old	45 stems	Yes	Many young clonal shoots. One large dead trunk and one large living trunk 25 inched diameter at breast height.
7	3	D	Fair	F	6 fresh 8 old	16 stems	Yes	Many young, clonal shoots.
8	5	F	Fair	F	5 fresh 35 old	-	Yes	Bark missing in places. Drooping stems and yellowing leaf tips.

Vegetation Communities

A total of six vegetation communities and one other area were classified and mapped within the Survey Area (Table 5) in accordance with the *Manual of California Vegetation, Second Edition* (Sawyer et al. 2009). Native and non-native plants species observed within these communities were recorded (Attachment 4).

Table 5. Vegetation Communities

Vegetation Community	Dominant Species	Acreage	Acreages Proposed for Impact
California Buckwheat Scrub	California buckwheat and chaparral yucca are co-dominant in the shrub canopy with California sagebrush (*Artemisia californica*), Acton daisy (*Encelia actonii*), and deerweed (*Acmispon glaber*). Emergent California juniper trees were present at low cover.	3.41	0.49
Fiddleneck - Phacelia Fields	Common fiddleneck (*Amsinckia menziesii*) was dominant or co-dominant with other annuals such as slender woolly buckwheat, slender pectocarya, and angel gilia. Non-native species observed in lower numbers include cheat grass, oriental hedge mustard, Mediterranean schismus, and red-stemmed filaree.	0.78	0.26
Disturbed Fiddleneck - Phacelia Fields	Common fiddleneck was dominant or co-dominant with other annuals such as slender woolly buckwheat, slender pectocarya, California poppy (*Eschscholzia californica*), and angel gilia. Non-native species observed domination 25 percent or more of this community include cheat grass, oriental hedge mustard, Mediterranean schismus, and red-stemmed filaree.	25.87	25.36
Joshua Tree Woodland with California Juniper Woodland Association	Four living Joshua trees are present that have a Size Class of 3 or greater (trees No. 1 and No. 6 – 8) with three young living Joshua trees (trees No. 2, No. 4 and No. 5) with Size Classes below 3. Shrubs present along with California juniper (*Juniperus californica*) include green ephedra, chaparral yucca, California buckwheat, and Mojave desert California buckwheat. Annual native species included angel gilia, baby blue-eyes (*Nemophila menziesii*), grass blazingstar (*Mentzelia ravenii*), and white fiesta flower (*Pholistoma membranaceum*).	12.54	3.67
Rubber Rabbitbrush Scrub	Rubber rabbitbrush is dominant or co-dominant in the shrub canopy with Ephedra spp., California buckwheat, Mojave desert California buckwheat, Anderson's wolfberry (*Lycium andersonii*), box-thorn (*Lycium cooperi*), and cotton thorn (*Tetradymia axillaris* var. *longispina*). Non-natives present at low cover included Mediterranean schismus.	1.33	0.95

Table 5. Vegetation Communities

Vegetation Community	Dominant Species	Acreage	Acreages Proposed for Impact
Disturbed Rubber Rabbitbrush Scrub	Native rubber rabbitbrush is dominant in the shrub canopy with additional native herbaceous species also present, but with a substantial (greater than 25%) cover of non-native Mediterranean schismus as well.	12.70	12.70
Bare Ground	No vegetation present.	2.40	1.76
	Total Acres:	**59.03**	**45.19**

Within the 186-foot radius potential seedbank buffers of each Joshua tree, vegetation communities were also analyzed. There was a total of 12.50 acres of potential Joshua tree seed bank within the Survey Area. Of this seed bank acreage, individual acreages of each vegetation community were also mapped within the Proposed Impact Area (Table 6).

Table 6. Vegetation Community Acreages Within Potential Seedbank Buffers

Vegetation Community	Acreage	Acreages Proposed for Impact
California Buckwheat Scrub	1.03	0.25
Disturbed Fiddleneck - Phacelia Fields	5.28	2.40
Joshua Tree Woodland with California Juniper Woodland Association	5.28	1.98
Rubber Rabbitbrush Scrub	1.03	0.95
Disturbed Rubber Rabbitbrush Scrub	0.33	0.33
Bare Ground	0.85	0.51
Total Acres	**12.50**	**6.43**

Soil Characteristics

Three soil types occur within the Survey Area. These soil types are within the Amargosa and Hanford soil series (USDA 2022). Descriptions of each soil type are listed below.

AmF2—Amargosa rocky coarse sandy loam, 9 to 55 percent slopes, eroded is described as an excessively drained soil typically found in concave positions from 650 to 4,000 feet amsl. The parent material is residuum weathered from granite and the soil profile is typically composed of coarse sandy loam at the H1 layer (0 to 13 inches), gravelly coarse sandy loam at the H2 layer (13 to 18 inches), and unweathered bedrock at the H3 layer (18 to 22 inches). These soils typically have a very low water holding capacity, with a very high runoff when wet. The soil is 14 to 20 inches to lithic bedrock.

HbC—Hanford coarse sandy loam, 2 to 9 percent slopes is described as a well-drained soil typically found in linear positions from 2,600 to 4,200 feet amsl. The parent material is alluvium derived from granite and the soil profile is typically composed of coarse sandy loam at the H1 layer (0 to 8 inches), sandy loam at the H2 layer (8 to 39 inches), and gravelly loamy coarse sand at the H3 layer (39 to 70 inches). These soils typically have a moderate water holding capacity, with a low runoff when wet.

HcC—Hanford sandy loam, 2 to 9 percent slopes is described as a well-drained soil typically found in linear positions from 2,600 to 4,200 feet amsl. The parent material is alluvium derived from granite and the soil profile is typically composed of coarse sandy loam at the H1 layer (0 to 8 inches) and fine sandy loam at the H2 layer (8 to 70 inches). These soils typically have a moderate water holding capacity, with a low runoff when wet.

Mitigation Measures (Proposed Impacts)

There are 8 Joshua trees present on site, including living and formerly living trees. When the 186-foot potential seed bank buffer is applied to these trees, it is estimated that 6.43 acres of potential Joshua Tree habitat and will be impacted by the Project, with only 1.98 acres of that potential seed bank buffer containing Joshua Tree Woodland with California Juniper Association vegetation. Portions (0.51 acre) of the 6.43 acres of potential seedbank buffer are composed of compacted dirt roads and the likelihood that Joshua tree seeds would germinate within these compacted areas is low.

As the Project identified in the 2016 EIR Amendment, and the Project as modified by the 2021 EIR Amendment will result in the taking of a recently listed candidate species (Western Joshua Tree) under the CESA, an ITP or other CDFW waiver will be required by CDFW if Joshua trees remain a candidate species indefinitely or should Joshua trees be listed as Endangered/Threatened. However, the City's standard Conditions of Approval, including compliance with CDFW guidelines for procurement of an ITP and payment of CDFW mitigation fees, as applicable and the City of Palmdale's Native Vegetation Preservation Ordinance (Palmdale 1992), will ensure a less than significant impact to Western Joshua Trees. Evidence of compliance with the requirement (and the City's Condition of Approval) shall be submitted to the City and CDFW prior to realizing any effects to Joshua trees on the Project site.

In accordance with the City of Palmdale Native Desert Vegetation Ordinance (Palmdale 1992), Chambers Group's qualified botanists who performed the Joshua tree inventory are knowledgeable of western Joshua tree ecology, identification, and Yucca genus taxonomy. Their credentials are provided in Attachment 5.

Options for mitigation include purchase of credits at a CDFW-approved mitigation bank (e.g., Antelope Valley Conservation Bank), or preservation of onsite or offsite Joshua Tree Woodland habitat with long-term protection (e.g., Conservation Easement) in place. Credits at a mitigation bank at a ratio of 3:1 typically cost $25,000 per acre. The Developer proposes to leave 13.94 acres of the onsite property set aside as Open Space that will not be impacted by Project activities. If approved by CDFW and the City and if this portion of the site is placed under a Conservation Easement with a long-term property manager overseeing its maintenance, this portion may provide sufficient mitigation for the proposed impact. Preservation of [6.43 - 0.51 = 5.92 acres multiplied by 3] 17.76 acres of moderate- to high-quality Joshua Tree Woodland offsite may also be an option with a

Conservation Easement and long-term management facilitated by a non-profit conservancy as well. Further discussions with CDFW and the City regarding appropriate mitigation measures will be arranged in the future as needed.

If onsite mitigation is approved, minimization measures will also be implemented during construction to reduce impacts to the four Joshua trees that are located within the northwest corner of the site in the area proposed for Open Space. High visibility temporary protective fencing will be erected to reduce disturbance to the protected area. Project access will strictly adhere to existing roads (e.g., Bare Ground areas) and regular watering of access roads and Project spoils will be implemented to minimize fugitive dust that may accumulate on Joshua trees and inhibit photosynthesis.

Furthermore, given that the 186-foot potential seed bank buffers will be left in-tact for these four Joshua trees and not disturbed during construction activities, the included critical root zone which is estimated to be approximately 36 feet in diameter (Bowns 1973) will also remain in-tact.

Climate Change Resiliency of the Western Joshua Tree

Joshua trees are declining throughout their range, especially at the lower elevations. Rainfall has declined by approximately 20 percent in the last 20 years and average California desert temperatures have risen by almost 2 degrees Fahrenheit since the 1950s (Lopez 2021). Cole et al. (2011) predicted the widespread extinction of Joshua tree across much of its current range as a result of climate change and the University of California Riverside's Center for Conservation Biology believes that an almost complete elimination of the species from Joshua Tree National Park will occur by the end of the century (Lopez 2021). Joshua trees are threatened mainly by climate change and drought stressors, but also by development.

Impacts of Incidental Take

Local Scale (City of Palmdale)

Urban and metropolitan areas, like the City of Palmdale, currently overlap with approximately 2.2 percent of the range of Joshua trees (USFWS 2018). However, habitat loss due to urban development comprises a small proportion of the overall Joshua tree habitat and is not likely to influence the current condition at a population or species level. Furthermore, the City of Palmdale has city ordinances in place that protect and preserve Joshua trees to facilitate connectivity. Adherence to and implementation of the applicable measures specified in the Palmdale Native Desert Vegetation Ordinance (see Attachment 6) will reduce Project impacts to less than significant levels. The 8 Joshua trees (including one dead tree) proposed for removal are located in an area where the population is already experiencing reduced connectivity due to poor site conditions and reduced tree health. Natural recruitment is also minimal onsite and it is unlikely this particular population will be able to persist well into the future even in the absence of project-related activities. Project related impacts to the 8 Joshua trees (including one dead tree) are not expected to impact the population at a local scale.

Regional Scale (Antelope Valley)

The Antelope Valley serves as a broad linkage zone between the Angeles National Forest to the playa lakes within Edwards Air Force Base. Although there are no population number or trend estimates available for the Joshua tree, urban development within the Antelope Valley has resulted in Joshua tree habitat loss (USFWS 2018). Measures to protect the species are implemented through various entities within the Antelope Valley including the Los Angeles County General Plan that protects Joshua tree woodland and environmental management on Edwards Air Force Base that encourages the conservation of Joshua trees whenever feasible

and a revegetation plan that recommends replacement or replanting of Joshua trees to maintain the diversity of natural habitats. In addition to urban development, increased fire regimes largely due to the proliferation of highly flammable invasive annual grasses that provide fuel to the fire load have the potential to become increasingly impactful to Joshua tree populations. Joshua trees are not considered to be well-adapted to fire and loss from direct mortality, degraded seed bank, and alteration in seed-caching dynamics may occur. However, within the Antelope Valley much of the land is sparsely vegetated or barren and most of the surrounding Joshua tree population experiences long fire-return intervals. Therefore, fire frequency, which may be a threat to other regional areas, is unlikely to be currently influencing the species within the Antelope Valley. Considering the limited stressors to Joshua tree populations within the Antelope Valley, Project related impacts to Joshua trees are not expected to adversely affect Joshua trees at the regional scale.

Population Scale (South Population)

Currently, there are two geographically separate populations of western Joshua tree, the north and south populations. The Project site is located with the south population, which is distributed throughout a 3.7-million-acre area with approximately 51% of trees mapped within private lands (USFWS 2018). A review of major stressors on the south population found that climate trends pose the largest threat to Joshua trees at the population or species scale. Joshua tree range shifts and contractions resulting from climate change are the most serious threat to the species (WildEarth Guardians 2015). However, habitat loss, over-utilization, and air pollution are stressors that are not likely to influence the current condition of Joshua trees in the south population (USFWS 2018). There is little information available on the current numbers, densities, and age classes of existing Joshua tree stands across the south population outside of National Park Service (NPS) lands, but within NPS lands the density range is 4 to 112 trees per acre. In comparison, the portion of the south population that is to be impacted by Project activities has an average of less than one tree per acre. The Project is anticipated to impact 3.67 acres of Joshua Tree Woodland within the south population, which comprises a very small portion of this region. Because of this small proportion of the total population and low-density acreage, the take from Project impacts is not expected to influence the current condition of Joshua trees at a population or species scale. The population itself has a high capacity to recover from stochastic disturbance events due to the large distribution, ecological diversity, and large acreages within management/conservation areas containing intact habitat for the species. It is therefore concluded that the Project will not have a substantial impact on Joshua trees at the population scale.

Discussion

Within the Survey Area, approximately 12.54 acres of moderate quality Joshua Tree Woodland with California Juniper Association were mapped along with 5.28 acres of potential Joshua tree seed bank. There are 3.67 acres of Joshua Tree Woodland with California Juniper Association proposed for impact by the Project, with 1.98 acres of this vegetation community type within the potential seed bank buffers of living Joshua trees. This constitutes seven presently living Joshua trees (and one dead tree), of which three trees will be impacted by the proposed Project activities. These trees can be mitigated at a 3:1 ratio or as appropriate by CDFW and the City.

There are three Joshua trees proposed for removal as a result of this Project; however, removal of these trees does not constitute an impact on the Joshua tree species at large or the Joshua tree population as a direct result of Project-related activities or other known projects in the area.

The issuance of an ITP for construction of the Project would therefore not have adverse effects on the population or jeopardize the continued existence of Joshua tree as a species as detailed above. Sustained periods of drought and the prospect of climate change is such that the long-term survivorship of Joshua trees at this location is assumed to be low. The current health of the Joshua trees on site is "Fair" to "Good" with half of trees exhibiting epicormic shoot regeneration which is a response to stress. Natural recruitment was only observed with one young Joshua tree in Size Class 1 (Table 2), and it is unlikely this particular population will be able to persist well into the future even in the absence of Project-related activities. Conservation and funding resources should be focused elsewhere within the Joshua tree range where current Joshua tree health is greater, local disturbance is lower, natural recruitment is more stable and Joshua trees are more resilient to environmental changes. With sufficient mitigation elsewhere through preservation of existing high-quality Joshua tree woodland or in funding mitigation banks that strive to protect Joshua tree habitat, take of the three living Joshua trees as part of this Project is not expected to put the overall Joshua tree population in jeopardy.

Conclusions

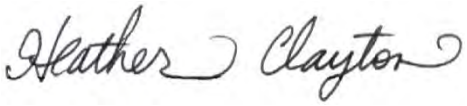
To mitigate for the approximately 3.67 acres of Joshua Tree Woodland with California Juniper Woodland Association proposed for impact by the Project, of which 1.98 acres would be included within the potential seed bank buffers of living Joshua trees, the Developer will look to protect Joshua Tree Woodland, onsite, offsite or pay into a mitigation bank, or a combination of more than one option. A total of seven living Joshua trees are present within the Project site (and one dead tree). Four of these living trees will remain in place, while three of them will be removed. No trees are proposed to be transplanted. All three living trees within the Proposed Impact Area will be mitigated appropriately after consultation with the City and issuance of an ITP by CDFW if necessary.

No other special status plant species were observed on site during the surveys and no additional mitigation is proposed.

Please contact me at (949) 261-5414 extension 7241 or hclayton@chambersgroupinc.com if you have any questions or concerns regarding this report.

Sincerely,

CHAMBERS GROUP, INC.



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Attachment 1: Figures

Figure 1 – Project Location and Vicinity Map

Figure 2 – Photo Stations

Figure 3 – Joshua Tree Observations

Figure 4 – Vegetation Communities

Figure 5 – Survey Transect Lines

Attachment 2

Attachment 2: Site Photographs

Attachment 3

Attachment 3: Individual Joshua Tree Photographs

Attachment 4

Plant Species Observed

Attachment 5

Qualified Botanist Credentials

Attachment 6

Palmdale Native Desert Vegetation Ordinance

References

Bowns, J.E.

1973 *An autecological study of blackbrush (*Coleogyne ramosissima Torr.) *in southeastern Utah. Logan, UT*: Utah State University. 115 p. Dissertation.

California Department of Fish and Wildlife (CDFW)

2018 *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities.* State of California, California Natural Resources Agency. Sacramento, CA. https://www.wildlife.ca.gov/Conservation/Survey-Protocols#377281280-plants. Accessed March 2022.

2020 Trimming of Western Joshua Trees and Removal of Dead Western Joshua Trees. https://wildlife.ca.gov/Conservation/CESA/WJT. Accessed March 2022.

Cole K.L., K. Ironside, J. Eischeid, G. Garfin, P.B. Duffy, and C. Toney
2011 Past and Ongoing Shifts in Joshua Tree Distribution Support Future Modeled Range Contraction. *Ecological Applications* 21: 137–49

Kliemann, M.W.
1979 A Review of the Natural Values of the Hualapai Valley Joshua Tree "Forest;" An Examination of the Appropriateness of Current Protective Measures at the Site; and Various Recommendations Aimed at Improving Protection of the Resource. Kingman, AZ: *U.S. Department of the Interior, Bureau of Land Management, Kingman Resource Area*: 12-24.

Lopez, S.
2021 Imagine No Joshua Trees in Joshua Tree National Park. *Los Angeles Times.* June 5, 2021.

Palmdale, City of
1992 Palmdale Native Desert Vegetation Ordinance https://cityofpalmdale.org/DocumentCenter/View/1095/Native-Plant-Ordinance-PDF. Accessed May 2022.

Rowlands, P.G.
1978 The Vegetation Dynamics of the Joshua Tree (*Yucca brevifolia* Engelm.) in the Southwestern United States of America. Published dissertation, University of California, Riverside.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens
2009 *A Manual of California Vegetation, 2nd edition*. California Native Plant Society Press, Sacramento, CA.

Simpson, P.G.
1975 Anatomy and Morphology of the Joshua Tree (*Yucca brevifolia*): An Arborescent Monocot. Published dissertation, University of California, Santa Barbara.

Ultrasystems, Inc. (Ultrasystems)
1985 *Final Environmental Impact Report Rancho Vista Specific Plan.* Prepared for the City of Palmdale. Ultrasystems, Inc., Irvine, CA.

United States Department of Agriculture, Soil Survey Staff (USDA)
2022 Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/app/. Accessed April 2022.

United States Fish and Wildlife Service (USFWS)

2018 Sirchia, F., S. Hoffman, and J. Wilkening. *Joshua Tree Species Status Assessment.* Dated October 23, 2018. 113 pp. + Appendices A–C. U.S. Fish & Wildlife Service. https://ecos.fws.gov/ecp/species/10407, Accessed May 2022.

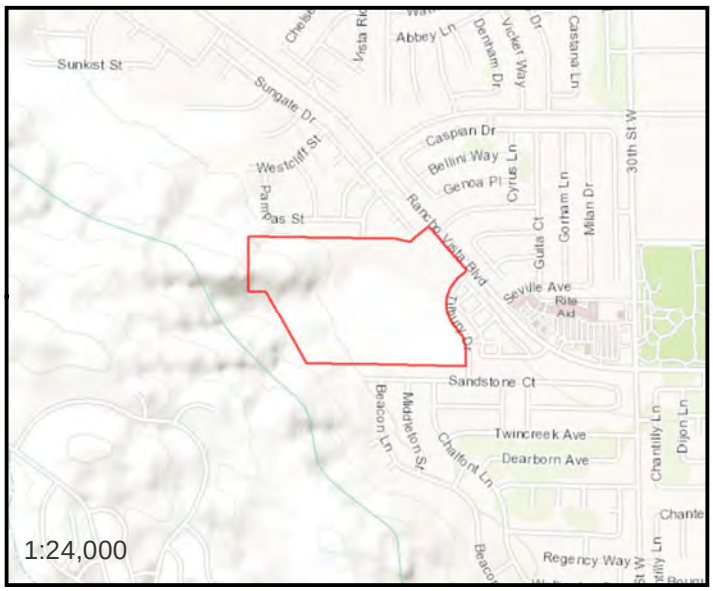
Webber, J.M.

1953 Yuccas of the Southwest. *Agriculture Monograph* No. 17. Washington, DC: U.S. Department of Agriculture, Forest Service. 97 pgs.

WildEarth Guardians

2015 Jones, T. and S. Goldrick. Petition to List the Joshua tree (*Yucca brevifolia*) Under the Endangered Species Act. *Petition Submitted to the U.S. Secretary of the Interior Acting through the U.S. Fish and Wildlife Service*. WildEarth Guardians, Denver, CO: 47 pgs.

ATTACHMENT 1 – FIGURES



Survey Area

Proposed Impact Area

N

0 150 300 600

Feet

Figure 1

R.Y. Rancho Vista Blvd Development
Project Location and Vicinity

Name: 21331 BIO Fig 1 Project Location and Vicinity.Mxd
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CHAMBERS GROUP

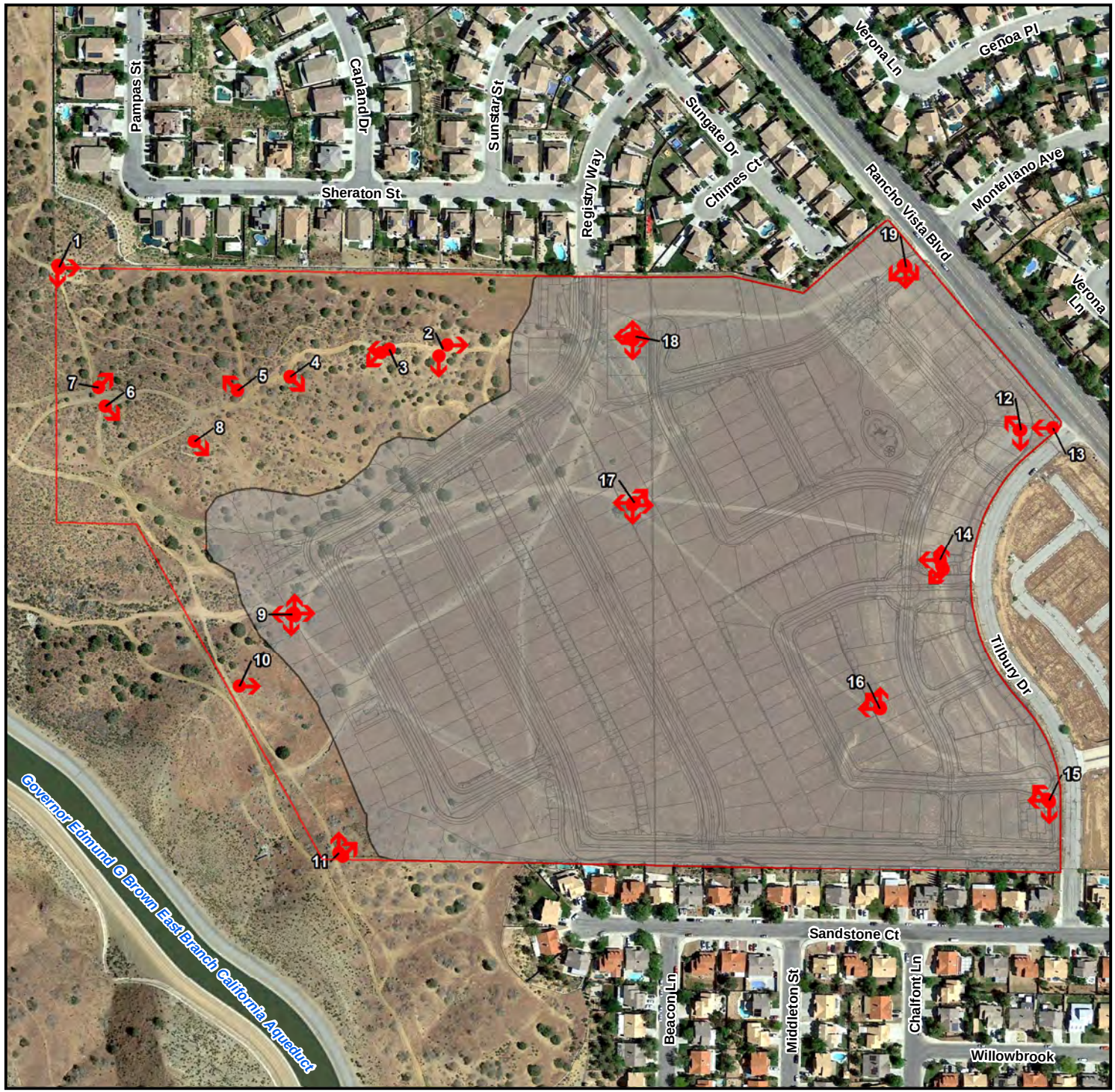

Figure 2
R.Y. Rancho Vista Blvd Development
Photo Stations

Survey Area
Proposed Impact Area
Photo Station

N

0 175 350 700
Feet

Name: 21331 BIO Fig 2 Photo Stations.Mxd
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Figure 3
R.Y. Rancho Vista Blvd Development
Joshua Tree Observations

- Survey Area
- Proposed Impact Area
- Joshua Tree Observations
- Potential Joshua Tree Seed Bank

N

0 175 350 700
Feet

Name: 21331 BIO Fig 3 Joshua Tree Observations.Mxd
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CHAMBERS GROUP

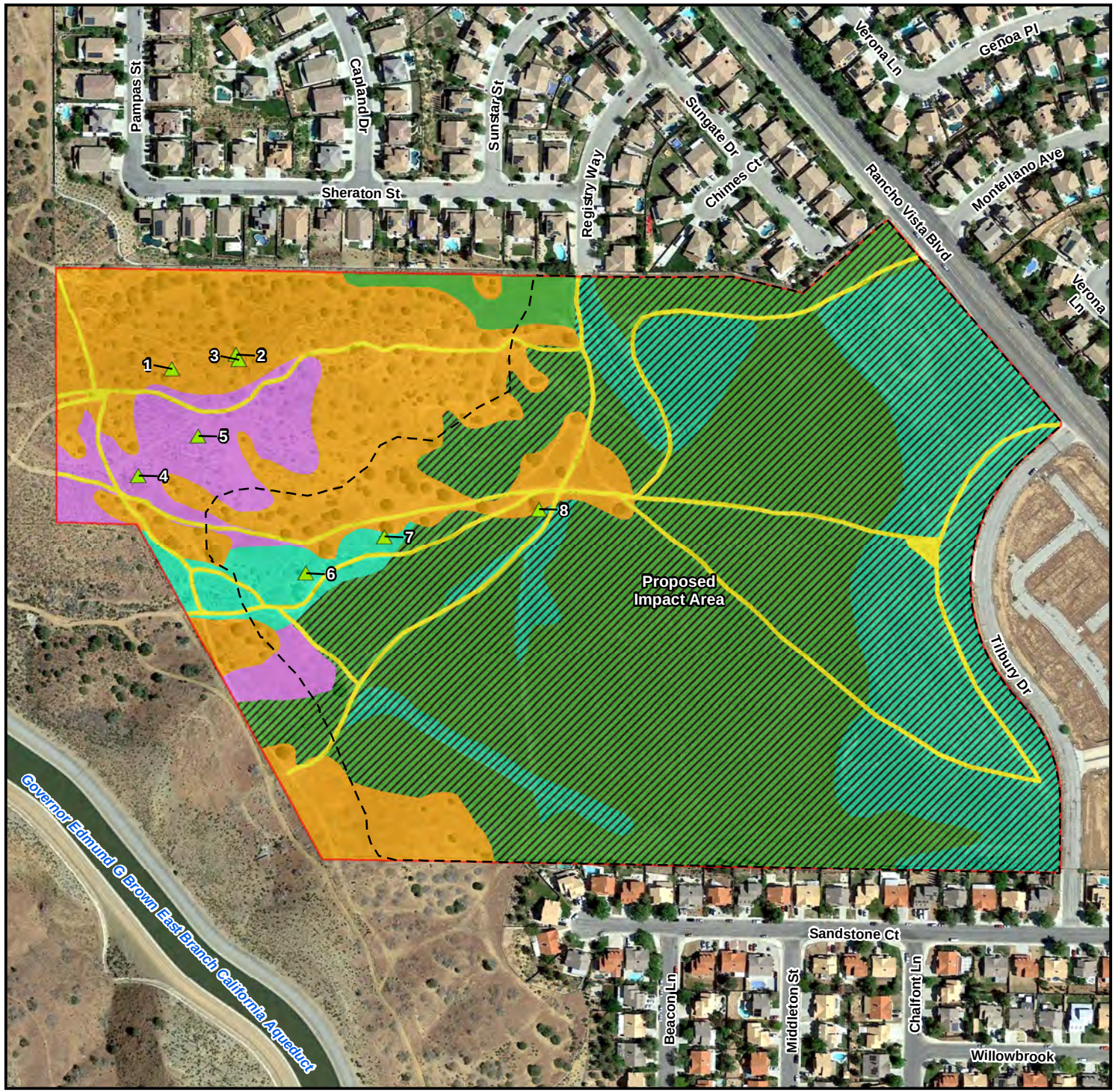

Figure 4
R.Y. Rancho Vista Blvd Development
Vegetation Communities

- Survey Area
- Proposed Impact Area

Vegetation Communities

- Bare Ground
- California Buckwheat Scrub
- Joshua Tree Woodland with California Juniper Woodland Association
- Fiddleneck - Phacelia Fields
- Disturbed Fiddleneck - Phacelia Fields
- Rubber Rabbitbrush Scrub
- Disturbed Rubber Rabbitbrush Scrub

N

0 175 350 700
Feet

Name: 21331 BIO Fig 4 Vegetation Communities.Mxd
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CHAMBERS GROUP

Figure 5
R.Y. Rancho Vista Blvd Development
Survey Transects

- Survey Area
- Proposed Impact Area
- Survey Transect
- Joshua Tree Observations

N

0 175 350 700
Feet

Name: 21331 BIO Fig 5 Survey Transects.Mxd
Print Date: 5/18/2022 1:30:28 PM Author: pcarlos

CHAMBERS GROUP

ATTACHMENT 2 – GENERAL SITE PHOTOGRAPHS

ATTACHMENT 2 – SITE PHOTOGRAPHS

	**Photo Station 1** Photo 1 facing east.
	**Photo Station 1** Photo 2 facing south.
	**Photo Station 2** Photo 1 facing east.

	**Photo Station 2** Photo 2 facing south.
	**Photo Station 3** Photo 1 facing west.
	**Photo Station 3** Photo 2 facing southwest.

	**Photo Station 4** Photo 1 facing southeast.
	**Photo Station 5** Photo 1 facing northwest.
	**Photo Station 6** Photo 1 facing southeast.

	**Photo Station 7** Photo 1 facing northeast.
	**Photo Station 8** Photo 1 facing southeast.
	**Photo Station 9** Photo 1 facing east.

	**Photo Station 9** Photo 2 facing north.
	**Photo Station 9** Photo 3 facing south.
	**Photo Station 9** Photo 4 facing west.

	**Photo Station 10** Photo 1 facing east.
	**Photo Station 11** Photo 1 facing northeast.
	**Photo Station 11** Photo 2 facing north.

	**Photo Station 12** Photo 1 facing northwest.
	**Photo Station 12** Photo 2 facing south.
	**Photo Station 13** Photo 1 facing west.

	**Photo Station 14** Photo 1 facing west.
	**Photo Station 14** Photo 2 facing south.
	**Photo Station 14** Photo 3 facing southwest.

	**Photo Station 14** Photo 4 facing north.
	**Photo Station 15** Photo 1 facing west.
	**Photo Station 15** Photo 2 facing northwest.

	**Photo Station 15** Photo 3 facing south.
	**Photo Station 16** Photo 1 facing north.
	**Photo Station 16** Photo 2 facing northwest.

	**Photo Station 16** Photo 3 facing west.
	**Photo Station 17** Photo 1 facing south.
	**Photo Station 17** Photo 2 facing east.

	**Photo Station 17** Photo 3 facing northeast.
	**Photo Station 17** Photo 4 facing west.
	**Photo Station 18** Photo 1 facing south.

	**Photo Station 18** Photo 2 facing west.
	**Photo Station 18** Photo 3 facing north.
	**Photo Station 18** Photo 4 facing east.

	**Photo Station 19** Photo 1 facing southeast.
	**Photo Station 19** Photo 2 facing south.
	**Photo Station 19** Photo 3 facing southwest.

ATTACHMENT 3 – INDIVIDUAL JOSHUA TREE PHOTOGRAPHS

ATTACHMENT 3 – INDIVIDUAL JOSHUA TREE PHOTOGRAPHS

	**Tree No. 1** Size Class: 3 Age Class: D Health: Fair Pheno. Phase: F Terminal Branching Panicles: 4 fresh Clonal Growth: None Impacted Trees: No Comments: Bark missing on half of lower trunk.
	**Tree No. 2** Size Class: 1 Age Class: B Health: Good Pheno. Phase: L Terminal Branching Panicles: None Clonal Growth: None Impacted Trees: No Comments: Minor staining on leaves. Growing out from the middle of a California juniper's canopy.

	**Tree No. 3** Size Class: 2 Age Class: - Health: dead Pheno. Phase: - Terminal Branching Panicles: - Clonal Growth: - Impacted Trees: No Comments: Dead, next to California juniper, 4 feet away from tree No. 2.
	**Tree No. 4** Size Class: 2 Age Class: C Health: Good Pheno. Phase: L Terminal Branching Panicles: none Clonal Growth: Yes, 4 stems Impacted Trees: No Comments: Cluster of 4 stems, one of which is 5 feet away.
	**Tree No. 5** Size Class: 2 Age Class: C Health: Fair Pheno. Phase: L Terminal Branching Panicles: 1 old on dead branch Clonal Growth: Yes, 4 stems Impacted Trees: No Comments: One fallen branch and 2 small, clonal stems 2 feet away.

	**Tree No. 6** **Photo 2** Size Class: 4 Age Class: E Health: Good Pheno. Phase: F Terminal Branching Panicles: 12 fresh, 24 old Clonal Growth: Yes, 45 stems Impacted Trees: Yes Comments: Many young clonal shoots. One large dead trunk and one large living trunk 25 inched diameter at breast height.
	**Tree No. 7** Size Class: 3 Age Class: D Health: Fair Pheno. Phase: F Terminal Branching Panicles: 6 fresh, 8 old Clonal Growth: Yes, 16 stems Impacted Trees: Yes Comments: Many young, clonal shoots.

Tree No. 8

Size Class: 5

Age Class: F

Health: Fair

Pheno. Phase: F

Terminal Branching Panicles:
5 fresh, 35 old

Clonal Growth: None

Impacted Trees: Yes

Comments: Bark missing in places. Drooping stems and yellowing leaf tips.

ATTACHMENT 4 – PLANT SPECIES OBSERVED

ATTACHMENT 4 – PLANT SPECIES OBSERVED

Scientific Name	Common Name
GYMNOSPERMS	
CUPRESSACEAE	**CYPRESS FAMILY**
Juniperus californica	California juniper
EPHEDRACEAE	**EPHEDRA FAMILY**
Ephedra nevadensis	Nevada ephedra
Ephedra viridis	green ephedra
ANGIOSPERMS (EUDICOTS)	
APIACEAE	**CARROT FAMILY**
Lomatium dasycarpum	woolly-fruited lomatium
ASTERACEAE	**SUNFLOWER FAMILY**
Ambrosia acanthicarpa	annual bur-sage
Ambrosia salsola var. *salsola*	cheesebush
Baccharis sarothroides	broom baccharis
Encelia actoni	Acton daisy
Ericameria linearifolia	interior goldenbush
Ericameria nauseosa	rubber rabbitbrush
Eriophyllum confertiflorum	golden yarrow
Lasthenia californica subsp. californica	coast goldfields
Layia glandulosa	white tidy-tips
Lessingia filaginifolia	cudweed aster
Stephanomeria pauciflora	wire lettuce
Tetradymia axillaris var. longispina	cotton thorn
BORAGINACEAE	**BORAGE FAMILY**
Amsinckia menziesii	common fiddleneck
Cryptantha intermedia	common forget-me-not
Nemophila menziesii	baby blue-eyes
Pectocarya linearis subsp. *ferocula*	slender pectocarya
Pectocarya penicillata	sleeping combseed
Phacelia tanacetifolia	tansy phacelia
Pholistoma membranaceum	white fiesta flower
BRASSICACEAE	**MUSTARD FAMILY**
*Brassica tournefortii**	sahara mustard
*Sisymbrium orientale**	oriental hedge mustard
Tropidocarpum gracile	slender dobie-pod
CACTACEAE	**CACTUS FAMILY**
Cylindropuntia echinocarpa	golden cholla
CONVOLVULACEAE	**MORNING-GLORY FAMILY**
Cuscuta californica	California dodder
CUCURBITACEAE	**GOURD FAMILY**

Scientific Name	Common Name
Marah macrocarpa	wild cucumber
EUPHORBIACEAE	**SPURGE FAMILY**
Chamaesyce albomarginata	rattlesnake weed
Croton setiger	turkey-mullein
FABACEAE	**LEGUME FAMILY**
Acmispon glaber	deerweed
Acmispon strigosus	strigose lotus
Lupinus nanus	valley sky lupine
GERANIACEAE	**GERANIUM FAMILY**
*Erodium cicutarium**	red-stemmed filaree
LAMIACEAE	**MINT FAMILY**
Salvia columbariae	chia
Salvia dorrii	desert sage
LOASACEAE	**LOASA FAMILY**
Mentzelia ravenii	grass blazingstar
MONTIACEAE	**MINER'S LETTUCE FAMILY**
Calandrinia menziesii	red maids
Claytonia parviflora subsp. *parviflora*	Utah Miner's-lettuce
NYCTAGINACEAE	**FOUR O'CLOCK FAMILY**
Mirabilis laevis	wishbone bush
ONAGRACEAE	**EVENING PRIMROSE FAMILY**
Camissonia campestris	field evening primrose
Camissoniopsis bistorta	California sun cup
Eulobus californicus	California evening primrose
PAPAVERACEAE	**POPPY FAMILY**
Eschscholzia californica	California poppy
POLEMONIACEAE	**PHLOX FAMILY**
Eriastrum sapphirinum	sapphire eriastrum
Gilia angelensis	angel gilia
POLYGONACEAE	**BUCKWHEAT FAMILY**
Eriogonum fasciculatum	California buckwheat
Eriogonum fasciculatum var. *polifolium*	Mojave desert California buckwheat
Eriogonum gracile	slender woolly buckwheat
Eriogonum sp.	annual buckwheat
RANUNCULACEAE	**BUTTERCUP FAMILY**
Delphinium cardinale	scarlet larkspur
SOLANACEAE	**NIGHTSHADE FAMILY**
Lycium andersonii	Anderson's wolfberry
Lycium cooperi	box-thorn
ANGIOSPERMS (MONOCOTS)	
AGAVACEAE	**AGAVE FAMILY**

Scientific Name	Common Name
Hesperoyucca whipplei	chaparral yucca
Yucca brevifolia	western Joshua tree
LILIACEAE	**LILY FAMILY**
Calochortus sp.	mariposa lily
POACEAE	**GRASS FAMILY**
Bromus madritensis subsp. *rubens**	red brome
*Bromus tectorum**	cheat grass
*Hordeum murinum**	glaucous foxtail barley
Melica imperfecta	coast range melic
*Schismus barbatus**	Mediterranean schismus
THEMIDACEAE	**BRODIAEA FAMILY**
Dichelostemma capitatum	blue dicks

*Non-Native Species

ATTACHMENT 5 – QUALIFIED BOTANIST CREDENTIALS

Heather Clayton

Senior Botanist, Lead Restoration Ecologist, Aquatic Resources | Habitat Restoration and Enhancement, Weed Control, Habitat Mitigation

Education

MS, Biology, California State University, Fullerton, 2003

BA, Biology, Environmental Emphasis, Occidental College, Los Angeles, CA, 1999

Training

California Native Plant Society Vegetation Rapid Assessment Protocol for Vegetation Sampling Workshop

San Diego Tree Mortality Tour and Invasive Shot Hole Borer Identification

Certifications

California Native Plant Society Certified Field Botanist CFB-0012, Board Member

Plant Voucher Collecting Permit to Collect Voucher Specimens of State-Listed Endangered, Threatened and Rare Plants. No. 2081(a) 16 129 V.

CDFW Scientific Collection Permit No. SC-009907.

California Native Plant Society Member

Southern California Botanists Member

California Society for Ecological Restoration Member

California Invasive Plant Council Member

Professional Experience

Heather Clayton has more than 17 years of experience and serves as project manager and lead botanist/restoration ecologist on numerous habitat restoration and botanical monitoring/inventory projects. She is responsive to stringent deadlines and works with her field team to see that tasks are handled efficiently and effectively at each project site. As a certified field botanist through the California Native Plant Society and experienced in conducting plant surveys for special status species throughout California, Heather is an excellent asset to any project involving special status plant species. She can tailor an in-depth habitat mitigation and monitoring plan for a variety of habitats and has been instrumental in implementing and monitoring the restoration effort for sites with unproductive/problematic soils, for sites in environmentally sensitive areas with special status plant species and for sites overrun with invasive plant species. She recognizes the early signs of site decline and knows what remedial actions to take before problems escalate. She communicates effectively with landscape contractors and the resource agencies and is incredibly adept at maintaining budgets.

Project Experience

Vidal Energy Project, CDH Vidal LLC, Vidal, San Bernardino County, CA

Senior Biologist. Heather mapped the vegetation types throughout the 1,220-acre project site and assessed the potential for special status plant species. The project is composed of a solar photovoltaic component and battery energy storage facility component located approximately 2.5 miles southeast of Vidal, San Bernardino County, California. CORE plans to construct and operate a photovoltaic and battery energy storage system facility to generate 160 megawatts of alternating current (MW-AC) of renewable energy. The Project's permanent facilities would include PV panels, BESS, fencing, service roads, a power collection system, communication cables, overhead and underground transmission lines, electrical switchyards, a Project substation, and operations and maintenance facilities.

Chambers Group is providing surveys and analysis to assist the design engineers with the layout format of the solar arrays to avoid and minimize impacts to special status species and costly backend mitigation. Once design is finalized, Heather will assist with the preparation of permit applications and habitat restoration plans for drainages and vegetation that cannot be avoided.

Chevron Lucerne Valley Solar Project, Focused Survey and Report, Chevron Energy Solutions, Lucerne, San Bernardino County, CA

Staff Biologist/Field Manager. Heather conducted a focused survey for sensitive plants on a 516-acre site proposed by Chevron for solar panel installation. She walked transects in order to cover 100 percent of the project site. Heather organized teams during the survey and served as the lead contact for communication with the resource agencies. She also prepared a report documenting findings of the survey.

Silverado Solar Projects, Biological and Cultural Assessments, Silverado Power, Sub to Tetra Tech, Los Angeles, Fresno, Imperial, and San Bernardino Counties, CA

Senior Botanist. Heather coordinated the vegetation mapping and plant assessment for 67 proposed solar sites throughout Los Angeles, Riverside, Imperial, San Bernardino, and Fresno Counties. She conducted general reconnaissance biological surveys as well as protocol-level focused surveys for special status plant species within the proposed project sites. She contributed vegetation sections to more than 30 associated Biological Technical Reports and was instrumental in assuring quality control among documents.

Fiber-Optic Cable Installation, Biological Reconnaissance Surveys and Habitat Restoration, Forkert Engineering & Surveying, Victorville, San Bernardino County, CA to Las Vegas, Clark County, NV

Senior Biologist. Heather provided construction monitoring in accordance with project permits for protection of the desert tortoise. She conducted general biological reconnaissance surveys to map the vegetation communities, document the existing biological resources, assess weed populations, and assess the habitat's potential to support sensitive plant and wildlife species. Heather coordinated with CDFW to identify mitigation measures and monitoring requirements for the desert tortoise and other sensitive species based on the BE in order to streamline the Consistency Determination process. She coordinated with BLM to prepare and compose a Noxious Weed Management Plan and a Habitat Restoration Plan and assisted with succulent translocation and seeding of native species following the completion of construction activities. She continues to assist with oversight and technical expertise in ongoing desert habitat restoration activities, including transplanted succulent monitoring and cover estimates of seeded habitat.

Union Pacific Railroad Track Upgrade Project, Biological Reconnaissance Surveys and Vegetation Mapping, Parsons, Thermal, Riverside County, CA

Staff Botanist. Heather performed biological reconnaissance surveys and vegetation mapping along sections of a 100-mile-long corridor within the 200-foot right-of-way. The field survey focused primarily on determining the potential habitat for federal- and state-listed plant and wildlife species. She conducted focused plant surveys and desert tortoise surveys the following spring along a five-mile portion of the site with a potential to support sensitive species. Locations of rare plant populations or desert tortoise burrows were mapped with a GPS unit and reports were prepared documenting the results.

California High-Speed Rail, Focused Plant Surveys, URS, Fresno, Fresno County, CA to Palmdale, Los Angeles County, CA

Staff Biologist. Heather conducted focused plant surveys along the segment from Fresno to Palmdale. Under the direction of the California High-Speed Rail Authority, the proposed high-speed train network will be over 700 miles long, connecting the major metropolitan areas of the state.

Lost Canyons Development, Newport Pacific Land Company (NPLC), Simi Valley, Ventura County, CA

Senior Botanist, Restoration Ecologist, Project Manager. Prior to the purchase of the property, Heather met with NPLC to prepare a constraints analysis, costing all potential biological surveys and looking at a variety of mitigation options. Heather conducted focused plant surveys throughout the entire 239-acre Phase I area documenting more than 1,400 special-status mariposa lilies (*Calochortus* spp.). She also conducted a tree inventory of more than 250 trees and coordinated with an arborist to assign appraisal values. Heather prepared reports including a Mature Tree Protection, Relocation and Replacement Plan and met with the City of Simi Valley to identify appropriate mitigation measures. As project manager, Heather coordinates all schedules including protocol-level surveys for western spadefoot toad and least Bell's vireo as well as all pre-construction surveys and oversees the work effort to keep NPLC in compliance with project permits.

CERTIFIED

Field Botanist

THIS CERTIFICATE IS AWARDED TO

Heather Clayton

Having successfully completed the requirements of the California Botanist Certification Board of the California Native Plant Society, the above named is hereby recognized as a California Certified Consulting Botanist.

CFB-0012	12/9/2016	12/31/2021
Certificate Number	Date	Expiration Date

CALIFORNIA NATIVE PLANT SOCIETY BOARD OF CERTIFICATION

Dan Gluesenkamp
Executive Director,
California Native Plant Society

CALIFORNIA NATIVE PLANT SOCIETY

David L. Magney
Chairman,
Board of Certification

Jessica Calvillo

Botanist, Restoration Ecologist | Biological Resources, Aquatic Resources

Education

BA, Liberal Studies, Environmental Studies Minor, California State University, Fullerton, 2016

Certifications

California Native Plant Society, Field Botanist Certification– In-progress

University of California, Santa Cruz, California Naturalist Program Certification

University of California, Santa Cruz, Coursera Course: Ecosystems of California

Tel Aviv University, Coursera Course: Understanding Plants

Calflora, Observer Pro App Training

Bay-Friendly Landscaping & Gardening Coalition, Bay-Friendly Qualified Professional

United States Forest Service, Certified Volunteer

CPR and First Aid Certification – Current

Professional Summary

Jessica Calvillo is a botanist and naturalist with 7 years of experience working in habitat restoration, biological monitoring, native plant horticulture, special status plant surveys, nesting bird surveys and environmental science education. Her work has brought her valuably positive relationships with the California Native Plant Society, Facebook, Level 10 Construction, and more. Her skills in plant and wildlife identification, habitat restoration, and biological monitoring show through in the quality of work prevalent in all projects with which she is involved. Such projects have given her the chance to work within habitats such as Joshua Tree Woodland, Desert Saltbush Scrub, Mojave Creosote Bush Scrub, Coastal Sage Scrub, Chaparral, Oak Woodland, and wetland/riparian where she has encountered a variety of wildlife including listed fish species including Santa Ana sucker, Santa Ana speckled dace, arroyo chub, listed birds including least Bell's vireo, and other species including bobcats, double crested cormorants, and kingfishers. In addition to wildlife, she also has project experience with creosote bush, beavertail cactus, Catalina mariposa lily, slender mariposa lily, Plummer's mariposa lily, and endangered/candidate species such as western Joshua tree, Davidson's bush mallow, and southern tarplant.

Project Experience

Vidal Energy Project, Focused Plant Survey, CDH Vidal LLC (CORE), Imperial County, CA

Biologist. Chambers Group was retained by CORE to provide environmental services including habitat assessments, jurisdictional waters delineation, focused surveys for desert tortoise, burrowing owl, focused plant surveys, habitat restoration plan and permit application packages for the Vidal Energy Project. The project is composed of a solar photovoltaic component and battery energy storage facility component located approximately 2.5 miles southeast of Vidal, San Bernardino County, California. The Project consists of converting 1,220 acres of fallow agricultural land along the Colorado River into a solar farm. Jessica participated in line transect focused plant surveys throughout the Project area during the appropriate bloom period of the targeted plant species. This included close coordination with the large field survey crews to ensure that all areas of the site were surveyed, as well as adhering to safety standards during the hot summer months.

Fiber-Optic Installation, AT&T, Phase 2 – Halloran Summit Road to Baker, Afton Road to Yermo, and Yermo to Slash X ranch, Victorville, San Bernardino County, CA

Botanist. Jessica has conducted annual restoration monitoring, supplemental watering and health assessments of succulent transplants covering approximately 88 linear miles of the AT&T Fiber-optic Cable Installation project extending from Halloran Summit Road to the FT-8W Regeneration Station near Barstow, California, including the approximately 5-mile portion of the project that crosses through the Mojave National Preserve. Native plant species identified and worked with during monitoring activities consisted of those species common within vegetation communities such as Joshua Tree

Woodland, Desert Saltbush Scrub, Mojave Creosote Bush Scrub, Mojave Wash Scrub, and Stabilized and Partially Stabilized Desert Dunes.

Energy Source Mineral Project, County of Imperial, Imperial County, CA

Botanist. Chambers Group is providing California Environmental Quality Act (CEQA) services and all supplemental and supporting documents as required by Imperial County for the development of a mineral extraction plant located near Niland, California. Jessica conducted a literature review, rare plant survey, and habitat assessment for the preparation of permit application packages. She created a vegetation community map of the 75-acre site, documenting all present species. During the surveys, she observed several burrowing owls, documented their location, and collected photos. All data were entered into a biological technical report including the vegetation maps created for the site.

Lost Canyons Development, Newport Pacific Land Company, Simi Valley, Ventura County, CA

Botanist. Jessica conducted focused plant surveys and vegetation community mapping throughout the entire 1,770-acre Phase I and Phase 2 Project area proposed to be developed for single-family residential units. She surveyed the site which was primarily composed of coastal sage scrub and riparian habitat and using a GPS unit recorded special-status plant species documented on site such Catalina mariposa lily (*Calochortus catalinae*), slender mariposa lily (*Calochortus clavatus* var. *gracilis*), and Plummer's mariposa lily (*Calochortus plummerae*). To ensure positive identifications on these species she keyed the plants out using a dichotomous key. She then assisted in prepared reports including a 2020 Annual Report and a Focused Plant Survey Report.

Kerrigan Ranch Development Site, Biological Resources Surveys and Restoration, Pulte Group, Yorba Linda, Orange County, CA

Biologist/Botanist. Jessica conducted extensive biological resources surveys to document the biological conditions on several large restoration sites on behalf of private developer, Pulte Group. She implemented mitigation programs, both on site and off site, for coastal sage scrub and riparian habitats. She performed maintenance and annual performance monitoring for a 22-acre coastal sage scrub site and coordinated with the restoration crews and the Chambers Group Habitat Restoration Foreman to ensure required performance standards could be met. Her extensive botanical knowledge allowed her to skillfully direct the crews so as to preserve the site's natural resources. In Fall 2020 she performed a qualitative site assessment survey documenting the site's progress in relation to the set performance goals. This data was entered into a letter report and the interpreted to be included into the Project's annual report.

Big Tujunga Mitigation, Nesting Bird Surveys, Exotic Plant and Wildlife Removal, County of Los Angeles, Los Angeles County, CA

Biologist. Jessica oversaw exotic plant and wildlife species removal, nesting bird surveys, and vegetation surveys for the second largest Mitigation Band in Los Angeles County. The removal of exotic plants and wildlife from the stream, ponds and surrounding habitats helped protect the federally protected Santa Ana sucker, the state sensitive Santa Ana speckled dace and arroyo chub, and many other valuable wildlife and plant species. Before the performance of invasive species removal events Jessica performed surveys to flag and create protective barriers for sensitive plant and wildlife species such as the endangered Davidson's bush mallow and Least Bell's Vireo.

ASCON Landfill, Southern Tarplant Mitigation at Fairview Park and ASCON Landfill Site Interim Removal Measure, Vegetation Survey, Huntington Beach, Los Angeles County, CA

Biologist/Botanist. Jessica assisted in a special status plant quantitative assessment survey to evaluate the germination success of the of the endangered southern tarplant (*Centromadia parryi* subsp. *australis*) at restoration sites within Fairview Park, Costa Mesa, California in accordance with the Southern Tarplant Mitigation Plan. Jessica is intimately knowledgeable in all stages of southern tarplant identification and understands the conditions necessary to achieve success for this species.

ATTACHMENT 6 – PALMDALE NATIVE DESERT VEGETATION ORDINANCE

Title 14

ENVIRONMENTAL MANAGEMENT

Chapters:

Chapter 14.04

JOSHUA TREE AND NATIVE DESERT VEGETATION PRESERVATION

Sections:

14.04.010 Purpose and intent. It is determined by the City Council that appropriate action must be taken in order to protect and preserve desert vegetation, and particularly joshua trees, so as to retain the unique natural desert aesthetics in some areas of this city, and to promote the general welfare of the community. Although it may not be feasible, practicable, or in the public interest to preserve all healthy desert vegetation regulated under this chapter due to reasonable planning, developmental or property rights considerations, the design of development projects should strive to protect and maintain the most desirable and significant of the healthy desert vegetation in a manner consistent with the city general plan and the California Environmental Quality Act. (Ord. 952 §2 (part), 1992)

14.04.020 Title cite and applicability.

A. This chapter shall be known and may be cited as the "Palmdale Native Desert Vegetation Ordinance."
B. The provisions of this chapter shall apply to all public and private property within the city which contains joshua trees or other desert vegetation as defined by this chapter. (Ord. 952 §2 (part), 1992)

14.04.030 Definitions. For purposes of this chapter, certain words and phrases shall be defined as follows unless the context clearly requires otherwise:

A. "Damage" means any action which may cause injury death or disfigurement to desert vegetation. This includes, but is not limited to, cutting, mutilating, harvesting, overwatering and excavating.
B. "Desert native plant specialist" means any professional person whose combination of education and background in native desert vegetation is sufficient for he or she to be considered an expert in the field of native desert vegetation. The city's landscape architect will maintain a listing of qualified desert native plant specialists who shall be deemed authorized to carry out the duties set forth in this chapter.
C. "Desert vegetation" means joshua trees and California juniper as defined by this chapter, and other living plants identified pursuant to the California Desert Native Plants Act (Food and Agricultural Code section 80001, et seq.) as protected or designated on any state or federal rare and endangered species list.
D. "Development proposal" means an application for approval of a specific plan, a subdivision, conditional use permit, tentative tract map, parcel map or any other development permit or entitlement application which has been filed with and is pending for consideration by the City.
E. "Growing season" means the period of time each year from March 1 through August 31.
F. "Joshua tree" means a living tree of botanical name of Yucca brevifolia, including Y. revifolia var. Herbertii, and all other varieties and forms thereof.
G. "California juniper" means a living tree of the botanical name of Juniperus Californica.
H. "Maintenance" means all actions needed for the continued good health of joshua trees and other desert vegetation, including but not limited to, insect control, spraying, and removal of dead wood.

I. "Native desert vegetation preserve" means a site accepted by the City containing stands of native desert vegetation that will be preserved in a natural condition for passive recreation uses.
J. "Remove" means the physical removal of desert vegetation by grading or any other method likely to cause death of the vegetation.
K. "Tree bank" means a site accepted by the City for management and maintenance that will be utilized for the temporary storage of native desert vegetation until permanent transplantation sites can be located. (Ord. 952 § (part), 1992)

14.04.040 Prohibition of removal.

A. Desert vegetation shall not be removed, nor caused to be removed, on or from any parcel of land, except as provided by the provisions of this chapter.
B. A native desert vegetation removal permit shall be obtained from the city's landscape architect, or in lieu thereof, the director of public works' designee, prior to the removal of any native desert vegetation as defined in this chapter. (Ord. 952 §2(part), 1992)

14.04.050 Desert vegetation preservation plan requirements. All development proposal applications for sites containing native desert vegetation shall include a desert vegetation preservation plan, submitted with the development application, containing the following:

A. A written report and a site plan which depicts the location of each joshua tree and California juniper, discusses their age and health, identifies and locates all trees and shrubs which can be saved in place or relocated. The report shall be prepared by a desert native plant specialist.
B. A site landscaping plan showing the proposed location of those joshua trees or California junipers, and any other native desert vegetation that will remain on-site.
C. A long-term maintenance program for any desert vegetation preserved on the site. The minimum term of any maintenance program shall be two growing seasons, unless a shorter length of time is determined by the city's landscape architect, or in-lieu thereof, the director of public works' designee in cases where the trees retained on the site, are of such health and vigor after one growing season that their survival is assured.
D. Such other and further information as the director of planning may deem necessary to fulfill the purposes and intent of this chapter in a particular case. (Ord. 952 §2(part), 1992)

14.04.060 Desert vegetation preservation criteria. All development proposals for land which contains desert vegetation shall be subject to the following provisions regarding the preservation of native desert vegetation both on-and off-site:

A. The minimum standard of preservation shall be:
    1. Two joshua trees or California junipers per gross acre, averaged for the gross site area covered by the development application; or
    2. Where soil conditions or conditions of the joshua trees or California juniper prohibit the preservation of two trees per acre, or where the total number of healthy trees per gross acre is not equal to two per acre, the minimum standard of preservation will be determined by a desert native plant specialist and confirmed by the city's landscape architect, or in-lieu thereof, the director of public works' designee, in accordance with the following criteria:
        a. Soil characteristics of a proposed area for relocation of vegetation,
        b. Health of the native desert vegetation, including damage to trunk or root system,
        c. Size of the joshua tree and the location to where the tree will be transplanted,
        d. A suitable top-root ratio;
    3. Where possible, a minimum of two California juniper trees per gross acre shall be retained undisturbed on site. California junipers are valuable components of the native desert vegetation and it is desirable to retain specimens whenever possible. However, California junipers do not transplant well, are large plants which are difficult to incorporate into landscaping and are not readily available as nursery stock;
    4. To enhance the likelihood of survival, native desert vegetation that can not be fenced and left undisturbed, will not be left in place while grading. The options for preserving trees on-site after grading are the following:
        a. Move the vegetation slated to remain on-site to a holding area. After grading has been completed, move vegetation once again to a permanent location,
        b. Remove vegetation per options in subdivision 2 of subsection B of this section. After grading, import new joshua trees to landscaped area,
        c. Grade in Phases. Ready the area to receive vegetation first, then transplant and complete grading.

B. The quantity of joshua trees or California junipers calculated under the minimum standard of preservation as determined above shall be preserved by any combination of the following means:
   1. The development proposal shall be prepared in a manner which retains on-site those plants that can be incorporated into the design of the development. Development proposals should use native desert vegetation to landscape on-site detention basins, entry statement areas, and other open space sites whenever possible, where xeric landscaping is appropriate.

      a. California junipers retained on-site shall be credited toward the two trees per gross acre or other minimum standard of preservation.
      b. Other methods of preservation as shown in subsections (B) (2) (a)---(c) and (B) (3) shall not apply to California junipers:
   2. Of the total number of joshua trees required to be preserved under the two trees per acre required under subsection (A) (1) of Section 14.04.060 the joshua trees which are not preserved on-site shall be preserved by the following means, and shall count towards the required two trees per acre or other minimum standard of preservation:
      a. The development proposal shall make available to the city for transplantation any joshua trees identified by the city's landscape architect, or in-lieu thereof, the director of public works' designee, as suitable for use in landscaping any city property or facility,
      b. The development proposal shall include an offer to make available to other commercial, industrial or residential development projects, native desert vegetation that can be incorporated into another development proposal's landscaping,
      c. The development proposal shall include an offer to make available native desert vegetation to the public for use as landscaping. The native desert vegetation taken from the site may be used for landscaping. Vegetation from the site shall remain available to the public for a minimum of thirty days after appropriate public notice as determined by the planning director.
         i. The development proposal will provide for public notice of the availability of joshua trees or other desert vegetation or transplantation to other suitable property. The public notice shall be in a

form prescribed by the director of planning and shall generally conform to the Government Code Sections 65090 and 65091, although direct mail notice shall not be required. The public notice shall provide at least a thirty-day period during which transplantation may occur,

ii. The proponent of the development proposal may require reasonable security and/or indemnification before permitting persons to enter upon the property for transplantation,

iii. The proponent of the development proposal may not impose any fee or other charge upon persons entering upon the property for any purpose relating to the transplantation of native vegetation,

iv. The proponent of the development proposal shall use all reasonable efforts to encourage and permit transplantation to occur to the maximum possible extent,

d. Any joshua trees, which are required to be preserved and remain after the previous options have been pursued, may be transplanted to an off-site location, approved by the city's landscape architect or in-lieu thereof, the director of public works' designee, at the expense of the proponent of the development proposal. Identifying a suitable off-site location shall be the responsibility of the developer. The city shall provide areas for off-site tree banks. The city-administered tree banks that are identified will be made available for this use. This measure shall be viewed as an interim solution with the ultimate goal of relocating this native desert vegetation to permanent locations as can be found. Maintenance of vegetation transplanted to a city-administered tree bank is the responsibility of the city. The proponent of the development proposal shall be responsible for retaining a qualified consultant to provide initial water of trees after transplantation to a tree bank as required by the city landscape architect, or in-lieu thereof, the director of public works' designee, at the expense of the proponent of the development proposal;

3. Only after all other options are exhausted, proponent may pay an in-lieu fee to the city to fulfill their obligation of preservation of native desert vegetation. The fee will be used to provide partial funding for the maintenance and coordination of the native desert vegetation banks and preserves. The in-lieu fee

will be accepted only when preservation of joshua and/or juniper trees is not possible due to site constraints that preclude the feasible preservation of desert vegetation, and no alternative preservation options remain. When a proponent must pay an in-lieu fee, the fee shall be calculated on the minimum standard of two trees per acre, less any trees preserved by other means. The in-lieu fee amount shall be determined by resolution of the city council;

a. Where California junipers are retained on-site, they shall be credited toward the minimum standard of two trees per acre. However, where they cannot be retained undisturbed on-site, no in-lieu fee is required;

4. Any native desert vegetation in excess of the minimum standard for preservation may be removed after the public has had the opportunity to transplant native desert vegetation per subdivision (B) (3) (i) of Section 14.04.060, and after the native desert vegetation removal permit has been approved by the city, or if applicable, after the payment of the in-lieu fee. (Ord. 952 §2(part), 1992)

14.04.070 Maintenance requirements. Upon completion of construction of the development proposal and after final inspection and acceptance by the city, the following standards relative to ongoing maintenance of native desert vegetation shall apply:

A. Provisions shall be made assuring, at the expense of the proponent of the development, that the joshua trees and other desert vegetation preserved on-site, in landscape easements, or landscape assessment districts are maintained in a healthy condition for a minimum of two growing seasons.

B. After one year, an inspection and evaluation of joshua trees and other desert vegetation retained on-site will be performed by a desert native plant expert, at the expense of the proponent of the development. Based upon this evaluation, if it is determined that any quantity of joshua trees or other desert vegetation have died, it will be the responsibility of the proponent to provide replacement desert vegetation as determined by the city landscape architect, or in lieu thereof, the director of public works' designee.

C. The director of planning shall require posting of a bond or other appropriate security at the time of development proposal approval to assure maintenance of on-site trees, or trees in landscape easements or assessment districts, for a period of two years. If the project is otherwise required to have a bond posted for landscape maintenance requirements, this requirement shall be incorporated into the same bond. (Ord. 952 §2 (part) , 1992)

14.04.080 Native desert vegetation bank and preserve criteria.
Appropriate sites that can be acquired by the city through dedication, easement, or other appropriate means will be utilized as native desert vegetation banks and preserves.

A. Native desert vegetation preserves will be established on those sites acquired by the city which already contain stands of native desert vegetation that is of sufficient vigor and health to demand preservation. The intent of these sites is long-term preservation of the natural biological systems without disturbance. Secondarily, the sites shall be utilized for passive forms of recreation. The city shall administer the long-term maintenance of the sites.
B. Tree banks shall be established on those sites acquired by the city which are suitable for the temporary storage of transplanted desert vegetation. The intent of these sites will be to serve as storage facilities for native desert vegetation stored off-site until permanent locations for transplantation can be determined. The city shall administer the maintenance of these sites.
    1. Proponents wishing to utilize these sites for storage of vegetation shall obtain the permission of the city landscape architect, or in lieu thereof, the director of public works' designee, prior to placing vegetation onsite.
    2. Access to the sites for placement or removal of trees or charges shall require permission of the city landscape architect, or in lieu thereof, the director of public works' designee.
    3. Placement, relocation, and removal of trees shall only be allowed by native plant specialists or their approved subcontractors.
    4. Any trees stored in a city tree bank shall be available to the public for use in private landscaping, according to the terms of this section. (Ord. 952 §2 (part), 1992)

14.04.090 Exceptions to provisions. The following activities are exempt from the provisions of this chapter:

A. Development proposals upon which the city has taken final actions before the effective date of this chapter;
B. Construction of one single-family home on a lot or parcel;
C. Additions to existing single-family homes;
D. Cases of emergency where the director of housing, or his or her designee, or any member of a law enforcement agency or the Los Angeles County fire protection district, in the performance of his or her duties, determines that desert vegetation poses an imminent threat to the public safety;
E. Removal or relocation of native desert vegetation necessary to obtain adequate line-of-site distance as required by the city traffic engineer;

F. Removal of street trees from within the public right-of-way, which in the opinion of the director of public works or his or her designee, will or may cause damage to public improvements;
G. Action taken for the protection of existing electrical power or communication lines or other property of a public utility;
H. Routine maintenance of a joshua tree or other vegetation intended to ensure its continued health;
I. Joshua trees or other desert vegetation planted, grown and/or held for sale by a licensed nursery. (Ord. 952 §2(part), 1992)

14.04.100 Unlawful activities prohibited.

A. Except as provided in this chapter, it is unlawful for any person to damage any desert vegetation as defined in this code.
B. It is unlawful for any person to falsify any oral statement, paper or document issued to give permission for any person to remove desert vegetation or fail to comply with all conditions or stipulations of this chapter. (Ord 952 §2(part), 1992)

14.04.110 Violation - Penalty. Penalties for violations of this chapter shall be as specified in Chapter 1.12 of this code.

A. In addition to other penalties imposed by this code, any person, company, organization, firm or corporation shall be required to replace any damaged, illegally cut, destroyed, killed, removed, mutilated or harvested joshua trees, California junipers, or other desert vegetation pursuant to the recommendation of an authorized desert native plant specialist, to be retained at the expense of the violator. Such specialist shall determine the appropriate number, size, species, location and make written recommendations regarding the replacement of said trees or other desert vegetation. Replacement shall be in sufficient quantities to revegetate the illegally disturbed area either on-site or off-site within six months of adjudication.
B. Should the person, company, organization, firm or corporation who committed the violation fail to replace the damaged, cut, destroyed, killed, removed, mutilated or harvested joshua trees or other desert vegetation within six months after adjudication, the city may contract to have such plants replaced and the violator shall be charged the replacement costs. Said costs may be placed as a lien on real property. (Ord. 952 §2 (part), 1992)

14.04.120 Compliance with other laws and regulations. Nothing in the provisions of this chapter shall relieve nor be interpreted to exempt a proponent of a development proposal from complying with the requirements of the California Desert Native Plants Act, Food and

Agricultural Code Section 80001, et seq., and/or any applicable federal laws and regulations. Nor shall any provision of this chapter be construed so as to conflict, with, duplicate, or otherwise interfere with general law preemptive of local regulation. (952 §2 (part), 1992)