BIOLOGICAL RESOURCES ASSESSMENT, JURISDICTIONAL DELINEATION, AND NATIVE PLANT PROTECTION PLAN FOR THE BUBBLE HOTEL DEVELOPMENT ON APN 0601-231-20 JOSHUA TREE, SAN BERNARDINO COUNTY, CALIFORNIA

Prepared for:

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August 2021

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SECTION 1.0 - INTRODUCTION

Jennings Environmental, LLC (Jennings) was retained by Bubble Hotels, Inc, owner of APN 0601-231-20 to conduct a literature review and reconnaissance-level survey for the proposed Bubble Hotel development in Joshua Tree, CA (Project). The survey identified vegetation communities, the potential for the occurrence of special status species, or habitats that could support special status wildlife species, and recorded all plants and animals observed or detected within the Project boundary. This biological resources assessment is designed to address potential effects of the proposed project on designated critical habitats and/or any species currently listed or formally proposed for listing as endangered or threatened under the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA) or species designated as sensitive by the California Department of Fish and Wildlife (CDFW) or the California Native Plant Society (CNPS).

Information contained in this document is in accordance with accepted scientific and technical standards that are consistent with the requirements of the United States Fish and Wildlife Service (USFWS) and (CDFW). Additionally, the site was surveyed for any drainage features that would meet the definition of the Waters of the US (WOUS), Waters of the State (WOS), or CDFW jurisdiction. Also, the project is located within the high desert of San Bernardino County. As such, this report also contains the results of the Native Plant Protection Plan in accordance with San Bernardino County Development Code Section 88.01.060.

1.1 PROJECT LOCATION

The project is generally located in the northwest corner of Section 28, Township 1 North, Range 6 East, and is depicted on the northern edge of the *Joshua Tree North* U.S. Geological Survey's (USGS) 7.5-minute topographic map. More specifically the project is located within APN 0601-231-20, within the unincorporated area of Joshua Tree, San Bernardino County, California. The Project site is located on the southeast corner of Douglas Ln. and Yucca Mesa Rd. The site is surrounded by vacant parcels to the north, and east, with partially developed parcels to the west and south (Figures 1 and 2 in Appendix A).

1.2 PROJECT DESCRIPTION

The Proposed Project is to develop a portion of the parcel with a pod-style hotel. The development will include an office/guest reception area with a paved parking lot, porch, office room, conference room, kitchen, bedroom suite, and covered atrium. The campsite pods will consist of elevated platforms, approximately 3' above natural grade, with two pods being ADA compliant. Roadways leading to the pods will consist of compacted native soils with gravel.

2.0 – METHODOLOGY

2.1 LITERATURE REVIEW

Prior to performing the field survey, existing documentation relevant to the Project site was reviewed. The most recent records of the California Natural Diversity Database (CNDDB) managed by CDFW (CDFW 2021), the USFWS Critical Habitat Mapper (USFWS 2021), and the California Native Plant Society's Electronic Inventory (CNPSEI) of Rare and Endangered Vascular Plants of California (CNPS 2021) were

reviewed for the following quadrangle containing and surrounding the Project site: *Yucca Valley North* and *Joshua Tree North*, USGS 7.5-minute quadrangle. The *Yucca Valley North* quad was included in this search due to the site's proximity to this quad. These databases contain records of reported occurrences of federal- or state-listed endangered or threatened species, California Species of Concern (SSC), or otherwise special status species or habitats that may occur within or in the immediate vicinity of the Project site.

2.2 BIOLOGICAL RECONNAISSANCE-LEVEL SURVEY

Jennings biologist, Gene Jennings, conducted the general reconnaissance survey within the Project site to identify the potential for the occurrence of special status species, vegetation communities, or habitats that could support special status wildlife species. The surveys were conducted on foot, throughout the Project site between 0730 and 1000 hours on July 9, 2021, and 0630 and 1000 hours on July 11, 2021. Weather conditions during the July 9, 2021 survey included temperatures ranging from 80 to 92 degrees Fahrenheit, with no cloud cover, no precipitation, 2 to 5 mile per hour winds. Weather conditions during the July 11, 2021 survey included temperatures ranging from 78 to 90 degrees Fahrenheit, with moderate cloud cover, no precipitation, 2 to 5 mile per hour winds. Photographs of the Project site were taken to document existing conditions (Appendix B).

2.3 JURISDICTIONAL FEATURES

A general assessment of jurisdictional waters regulated by the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and CDFW was conducted for the proposed Project area. Pursuant to Section 404 of the Clean Water Act, USACE regulates the discharge of dredged and/or fill material into waters of the United States. The State of California (State) regulates the discharge of material into waters of the State pursuant to Section 401 of the Clean Water Act and the California Porter- Cologne Water Quality Control Act (California Water Code, Division 7, §13000 et seq.). Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Fish and Game Code, CDFW regulates all substantial diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife. The initial assessment was conducted by a desktop survey through the USGS National Hydrography Dataset for hydrological connectivity. Additional assessment findings are discussed in Sections 3.1.2 and 3.2.4. A discussion of the regulatory framework is provided in Appendix C.

2.4 NATIVE PLANT PROTECTION PLAN

The pedestrian survey was walked throughout the site and biologists from Jennings Environmental, Inc. evaluated each Western Joshua tree to determine which trees were suitable for relocation/transplanting based on a general health assessment. The precise location of each tree was recorded using a Garmin GPS unit and dirt roads and fencing provided a clear indication of site boundaries. Those Western Joshua trees which occur on the property site are presented in Table 3 in Appendix D and the locations are provided in Figure 3 in Appendix A. The factors utilized to determine which Western Joshua trees were suitable for transplanting

include the following factors:

- 1. Trees from 2 feet in height up to approximately 15 feet.
- 2. No visible signs of damage to the tree such as the absence of bark due to rodents or other animals.
- 3. A minimal number of branches (No more than 2 to 3 branches).
- 4. No excessive leaning of the tree.
- 5. No yellow or brown fronds.
- 6. Proximity to other Western Joshua trees (i.e., clonal), and
- 7. No exposed roots at the base of the tree.

2.5 VEGETATION

All plant species observed within the Project site were recorded. Vegetation communities within the Project site were identified, qualitatively described, and mapped onto a high-resolution imagery aerial photograph. Plant communities were determined in accordance with the *Manual of California Vegetation*, *Second Edition* (Sawyer et al. 2009). Plant nomenclature follows that of *The Jepson Manual, Second Edition* (Baldwin et al. 2012). A comprehensive list of the plant species observed during the survey is provided in Appendix D.

2.6 WILDLIFE

All wildlife and wildlife signs observed and detected, including tracks, scat, carcasses, burrows, excavations, and vocalizations, were recorded. Additional survey time was spent in those habitats most likely to be utilized by wildlife (native vegetation, wildlife trails, etc.) or in habitats with the potential to support state- and/or federally listed or otherwise special status species. Notes were made on the general habitat types, species observed, and the conditions of the Project site. A comprehensive list of the wildlife species observed during the survey is provided in Appendix D.

SECTION 3.0 – RESULTS

3.1 LITERATURE REVIEW RESULTS

According to the CNDDB, CNPSEI, and other relevant literature and databases, 17 sensitive species including 2 listed species, have been documented in the *Yucca Valley North* and *Joshua Tree North* quads. This list of sensitive species and habitats includes any State and/or federally listed threatened or endangered species, CDFW designated Species of Special Concern (SSC), and otherwise Special Animals. "Special Animals" is a general term that refers to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status. This list is also referred to as the list of "species at risk" or "special status species." The CDFW considers the taxa on this list to be those of greatest conservation need.

An analysis of the likelihood for the occurrence of all CNDDB sensitive species documented in the Yucca Valley North and Joshua Tree North guads is provided in Table 2, in Appendix D. This analysis takes into account species range as well as documentation within the vicinity of the project area and includes the habitat requirements for each species and the potential for their occurrence on the site, based on required habitat elements and range relative to the current site conditions. According to the databases, no USFWS designated critical habitat occurs within or adjacent to the project site.

3.1.1 SPECIAL STATUS SPECIES

Desert Tortoise

The desert tortoise is a State and federally listed threatened species. Throughout its range, it is threatened by habitat loss, domestic grazing, predation, collections, and increased mortality rates. The desert tortoise is typically found in creosote bush scrub. They are most often found on level or sloped ground where the substrate is firm but not too rocky. Tortoise burrows are typically found at the base of shrubs, in the sides of washes and hillsides. Because a single tortoise may have many burrows distributed throughout its home range, it is not possible to predict the exact numbers of individuals on a site based upon burrow numbers.

In 1992 the US Bureau of Land Management issued the California Statewide Desert Tortoise Management Policy which included categorizing habitat into three levels of classification. The management goal for Category I areas is to maintain stable, viable populations and to increase the population where possible. The management goal for Category II areas is to maintain stable, viable populations. The management goal for Category III areas is to limit population declines to the extent feasible. In April 1993, the BLM amended the CDCA plan to delineate these three categories of desert tortoise habitat on public lands. Although habitat categories apply only to public lands administered by the BLM, regulatory agencies typically determine habitat compensation ratios based on the nearest BLM habitat categories (Desert Tortoise Compensation Team 1991). With the adoption of the West Mojave Plan (U.S. Bureau of Land Management 2005), all lands that are outside Desert Wildlife Management Areas, including the subject parcel, are characterized as Category 3 Habitat, which is the lowest priority management area for viable populations of the desert tortoise.

Burrowing Owl

The burrowing owl (BUOW) is a state and federal SSC. This owl is a mottled, brownish and sand-colored, dove-sized raptor, with large, yellow eyes, a rounded head lacking ear tufts, white eyebrows, and long legs compared to other owl species. It is a ground-dwelling owl typically found in arid prairies, fields, and open areas where vegetation is sparse and low to the ground. The BUOW is heavily dependent upon the presence of mammal burrows, with ground squirrel burrows being a common choice, in its habitat to provide shelter from predators, inclement weather, and to provide a nesting place (Coulombe 1971). They are also known to make use of human-created structures, such as cement culverts and pipes, for burrows.

BUOW spends a great deal of time standing on dirt mounds at the entrance to a burrow or perched on a fence post or other low to the ground perch from which they hunt for prey. BUOW frequently hunt by hovering in place above the ground and dropping on their prey from above. They feed primarily on insects such as grasshoppers, June beetles, and moths, but will also take small rodents, birds, and reptiles. They

are active during the day and night but are considered a crepuscular owl; generally observed in the early morning hours or at twilight. The breeding season for BUOW is February 1 through August 31. Up to 11, but typically 7 to 9, eggs are laid in a burrow, abandoned pipe, or other subterranean hollows where incubation is complete in 28-30 days. Young BUOW fledges in 44 days. The BUOW is considered a migratory species in portions of its range, which includes western North America from Canada to Mexico, and east to Texas and Louisiana. BUOW populations in California are considered to be sedentary or locally migratory.

Throughout its range, the BUOW is vulnerable to habitat loss, predation, vehicular collisions, and destruction of burrow sites, and the poisoning of ground squirrels (Grinnell and Miller 1944, Zarn 1974, Remsen 1978). BUOW has disappeared from significant portions of their range in the last 15 years and, overall, nearly 60% of the breeding groups of owls known to have existed in California during the 1980s had disappeared by the early 1990s (Burrowing Owl Consortium 1993). The BUOW is not listed under the state or federal Endangered Species Act but is considered both a federal and state Species of Special Concern. The BUOW is a migratory bird protected by the international treaty under the Migratory Bird Treaty Act of 1918 and by State law under the California Fish and Game Code (CDFG Code #3513 & #3503.5).

Desert Kit Fox

The desert kit fox (*Vulpes macrotis*) is not federally- or state-listed, but is considered a species of local concern by the County of Los Angeles. It is an uncommon to rare permanent resident in arid habitats within southern California (CDFW 2017b). Kit foxes are threatened by a number of human activities, including poaching, pesticide and rodenticide use, and direct poisoning, as well as heavy agricultural and urban development (Eder 2005). Desert kit foxes occur in the desert and other arid habitats, including sagebrush flats, creosote scrub, and annual grassland habitats, and other areas with scattered brush, scrub, and shrubs. They are an important predator of small mammals, preying on black-tailed jackrabbits (*Lepus californicus*), desert cottontails (*Sylvilagus audubonii*), kangaroo rats, ground squirrels, and other rodents, insects, reptiles, birds, and bird eggs. Limited vegetation may be taken. Desert kit foxes excavate burrows in loose-textured sandy or loamy soils for shelter, pupping, and as an escape from extreme heat and cold (Eder 2005, CDFW B). Open, level areas are preferred for burrowing. Man-made structures and infrastructure, including culverts and pipes, also may be used for denning where suitable friable soils are not present (CDFW B).

American Badger

The American badger is a CDFW Species of Special Concern. Badgers are uncommon, permanent residents throughout California, and occur most commonly in open stages of shrub, woodland, and herbaceous habitats. They are tenacious diggers and occur where friable soils support denning and burrowing activities. They are active year-round, and most often nocturnal, although they may be active during the day. They prey upon fossorial rodents, especially California ground squirrels and pocket gophers; rats and mice, some reptiles, insects, eggs, birds, and carrion also may be taken. Breeding typically occurs in the summer and early fall, with pups being born the following March or April in burrows dug in relatively dry, often sandy soil. American badgers are threatened primarily by indiscriminate trapping, agricultural

conversion, and the eradication of ground squirrels and other fossorial rodents that comprise the majority of their prey base (CDFW B).

Western Joshua Tree

Western Joshua trees occur throughout the Mojave Desert in Southern California and are typically found at an elevation of 400 to 1,800 meters (~1,200 to ~5,400 feet). Western Joshua trees within the western portion of the Mojave Desert typically receive more annual precipitation during "normal" years; consequently, cloning occurs more often resulting in numerous trunks sprouting from the same root system. Western Joshua tree habitats provide habitat for a variety of wildlife species including desert woodrats (*Neotoma* sp.) and night lizards (*Xantusia* sp.) both of which utilize the base of the trees. A variety of birds also utilize Western Joshua trees for nesting such as hawks, common ravens, and cactus wrens. CDFW consider Western Joshua tree woodlands as areas that support relatively high species diversity and as such are considered to be a sensitive desert community. Western Joshua trees are also considered a significant resource under the California Environmental Quality Act (CEQA) and are included in the Desert Plant Protection Act, Food and Agricultural Code (80001 - 80006).

Additionally, pursuant to the provisions of Section 2074.2 of the Fish and Game Code, the California Fish and Game Commission (Commission), at its September 22, 2020, meeting, accepted for consideration the petition submitted to list the western Joshua tree (Yucca brevifolia) as threatened or endangered under the California Endangered Species Act. Based on that finding and the acceptance of the petition, the Commission also provided notice that the western Joshua tree is a candidate species as defined by Section 2068 of the Fish and Game Code.

3.1.2 JURISDICTIONAL WATERS

Aerial imagery of the site was examined and compared with the surrounding USGS 7.5-minute topographic quadrangle maps to identify drainage features within the survey area as indicated from topographic changes, blue-line features, or visible drainage patterns. The U.S. Fish and Wildlife Service National Wetland Inventory and Environmental Protection Agency (EPA) Water Program "My Waters" data layers were also reviewed to determine whether any hydrologic features and wetland areas had been documented within the vicinity of the site. Similarly, the Soil maps from the U.S. Department of Agriculture (USDA) - Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2021) were reviewed to identify the soil series on-site and to check if they have been identified regionally as hydric soils. Upstream and downstream connectivity of waterways (if present) was reviewed in the field, on aerial imagery, and topographic maps to determine jurisdictional status. No obvious signs of jurisdictional features were observed during the literature review.

3.1.3 HYDROLOGY AND HYDROLOGIC CONNECTIVITY

Hydrologically, the project site is located within an undefined Hydrologic Sub-Area (HSA 708.10) which comprises a 129,902-acre drainage area within the larger Black Rock Springs-Coyote Well Hydrologic Area (Hydrologic Unit Code [HUC10] 1810010016) (CalTrans, 2021). The Black Rock Springs-Coyote Well watershed in Joshua Tree is bordered to the north by the Coyote Lake and Pipes Wash watersheds, to the east by the Mesquite Lake and Quail Wash watersheds, to the south by the Upper Whitewater River

watershed, and to the west by the Little Morongo Creek – Morongo Wash watershed. (Figure 4 in Appendix A).

3.1.4 SAN BERNARDINO COUNTY DEVELOPMENT CODE

§ 88.01.060 Desert Native Plant Protection.

This Section provides regulations for the removal or harvesting of specified desert native plants in order to preserve and protect the plants and to provide for the conservation and wise use of desert resources. The provisions are intended to augment and coordinate with the Desert Native Plants Act (Food and Agricultural Code §§ 80001 *et seq.*) and the efforts of the State Department of Food and Agriculture to implement and enforce the Act.

(a) *Definitions.* Terms and phrases used within this Section shall be defined in Division 10 (Definitions) and/or defined by the California Food and Agricultural Code. The California Food and Agricultural Code definition, if one exists, shall prevail over a conflicting definition in this Development Code.

(b) *Applicability.* The provisions of this Section shall apply to desert native plants specified in Subdivision (c) (Regulated Desert Native Plants) that are growing on any of the following lands, unless exempt in compliance with § 88.01.030 (Exempt Activities):

(1) Privately owned or publicly owned land in the Desert Region.

(2) Privately owned or publicly owned land in any parts of the Mountain Region in which desert native plants naturally grow in a transitional habitat.

(c) *Regulated Desert Native Plants.* The following desert native plants or any part of them, except the fruit, shall not be removed except under a Tree or Plant Removal Permit in compliance with § 88.01.050 (Tree or Plant Removal Permits). In all cases the botanical names shall govern the interpretation of this Section.

(1) The following desert native plants with stems two inches or greater in diameter or six feet or greater in height:

- (A) Dalea spinosa (smoketree).
- (B) All species of the genus Prosopis (mesquites).
- (2) All species of the family Agavaceae (century plants, nolinas, yuccas).
- (3) Creosote Rings, ten feet or greater in diameter.
- (4) All Western Joshua trees.
- (5) Any part of any of the following species, whether living or dead:
 - (A) Olneya tesota (desert ironwood).
 - (B) All species of the genus Prosopis (mesquites).

- (C) All species of the genus Cercidium (palos verdes).
- (d) Compliance with Desert Native Plants Act. Removal actions of all plants protected or regulated by the Desert Native Plants Act (Food and Agricultural Code §§ 80001 et seq.) shall comply with the provisions of the Act before the issuance of a development permit or approval of a land use application.

3.2 FIELD STUDY RESULTS

3.2.1 HABITAT

The habitat on-site consists of *Larrea tridentata* Shrubland Alliance (Creosote bush scrub) and *Atriplex canescens* Shrubland Alliance (fourwing saltbush scrub), mixed with western Joshua trees and ruderal vegetation with non-native grasses. The site is relatively void of human disturbance except for a dirt road that transects the parcel from west to east. Table 1 in Appendix D contains a list of all plants found on-site. Surrounding land uses include undeveloped parcels, residential developments, and commercial developments.

3.2.2 WILDLIFE

Species observed or otherwise detected on or in the vicinity of the project site during the surveys included; great basin whiptail (*Aspidoscelis tigris tigris*), black-tailed jackrabbit (*Lepus californicus*), and house sparrow (*Passer domesticus*). Table 1 in Appendix D contains a list of all wildlife observed on-site.

3.2.3 SPECIAL STATUS SPECIES

No State and/or federally listed threatened or endangered species or other sensitive species were observed on-site during surveys.

Desert Tortoise

The site is marginally suitable for desert tortoise. However, there are no documented desert tortoise occurrences within the project site or the surrounding area and no individuals were observed during the site visit. Additionally, no burrows of suitable size or shape were observed within the Project area or Project buffer and the surrounding area is also heavily used by off-road vehicles and is adjacent to maintained rural properties. Therefore, no potential direct or indirect impacts to desert tortoise can be identified, and presence/absence surveys for this species are not warranted or recommended.

Burrowing Owl

The conditions present onsite are marginally suitable for BUOW. As such a BUOW owl survey was completed. The assessment survey was structured, in part, to detect BUOW. The survey consisted of walking transects spaced to provide 100% visual coverage of the project site. The result of the survey was that no evidence of BUOW was found in the survey area. No burrows of appropriate size, aspect, or shape were located and no BUOW pellets, feathers, or whitewash were found. No burrowing owl individuals were observed.

Although no BUOW individuals were observed, the Project site and adjacent area do contain some habitat that would be considered suitable for BUOW. Therefore, a preconstruction BUOW survey is recommended to avoid any potential project-related impacts to this species.

Desert Kit Fox

The site is marginally suitable for this species. However, this species was not observed during the survey. No burrows or suitable size or shape we observed and no evidence of this species were observed either (scat, predation remains, tracks, etc.). As such, this species is considered absent from the project site and no further surveys are required.

American Badger

The site is marginally suitable for this species. However, this species was not observed during the survey. No burrows or suitable size or shape we observed and no evidence of this species were observed either (scat, predation remains, tracks, etc.). As such, this species is considered absent from the project site and no further surveys are required.

Western Joshua Tree

There are currently 239 western Joshua trees present on-site. The proposed Project is to develop around the trees with the campground infrastructure. As mentioned above this species is currently a candidate for listing under CESA. As such, any impacts to western Joshua trees will require an Incidental Take Permit (ITP) from the CDFW. No impacts to this species are currently proposed, as the development plan as relocated all infrastructure to avoid all western Joshua trees on-site. Figure 5 in Appendix A, shows the proposed site plan as it relates to the location of western Joshua trees on-site.

Designated Critical Habitat

The site is not located within or adjacent to any USFWS designated Critical Habitat. No further action is required.

Nesting Birds

The Project site and immediate surrounding area does contain habitat suitable for nesting birds. Nesting bird surveys should be conducted prior to any construction activities taking place during the nesting season to avoid potentially taking any birds or active nests. In general, impacts to all bird species (common and special status) can be avoided by conducting work outside of the nesting season (generally March 15th to September 15th), and conducting a worker awareness training. However, if all work cannot be conducted outside of the nesting season, a project-specific Nesting Bird Management Plan can be prepared to determine suitable buffers.

3.2.4 JURISDICTIONAL WATERS

Waters of the United States and Waters of the State

The USACE has the authority to permit the discharge of dredged or fill material in Waters of the U.S. under Section 404 CWA. While the Regional Water Quality Board has authority over the discharge of dredged or

fill material in Waters of the State under Section 401 CWA as well as the Porter-Cologne Water Quality Control Act. The Project area was surveyed with 100 percent visual coverage and no drainage features were present on site. As such, the subject parcel does not contain any wetlands, waters of the U.S., or Waters of the State.

Fish and Game Code Section 1602 - State Lake and/or Streambed

The CDFW asserts jurisdiction over any drainage feature that contains a definable bed and bank or associated riparian vegetation. The Project area was surveyed with 100 percent visual coverage and no definable bed or bank features exist on the project site. As such, the subject parcel does not contain any areas under CDFW jurisdiction.

3.2.5 WETLANDS

NWI maps did not identify portions within the Project site as a Riverine/Riparian system. Additionally, none of the requirements for wetland designation (hydric vegetation, hydric soils, and/or wetland hydrology) were present on site. As such, there are no wetlands currently present on site.

3.2.6 NATIVE PLANT PROTECTION PLAN

There are 239 Western Joshua trees on the property. A summary of all western Joshua trees is provided below in Table 3-1. Table 3 in Appendix D contains detailed information about each tree based on the seven factors listed in Section 2.4. The Western Joshua trees that are suitable for transplanting should be relocated/transplanted on-site, which is the preferable option, or to an off-site area approved by the County of San Bernardino and CDFW.

Total Number of Western Joshua Trees On-Site	Western Joshua Trees that can be Relocated/Transplanted	Number of Clonal Trees	Number of Non- Clonal Trees
239	146	11	93

The site also contains several Mojave yuccas (*Yucca schidigera*), which are also covered under San Bernardino County Development Code § 88.01.060. As such, if the proposed development encounters one of these individuals, it should be relocated on-site to a suitable location approved by the County.

SECTION 4.0 - CONCLUSIONS AND RECOMMENDATIONS

Based on the literature review and personal observations made in the immediate vicinity, no State and/or federally listed threatened or endangered species are documented/or expected to occur within the Project site. Additionally, no plant species with the California Rare Plant Rank (CRPR) of 1 or 2 were observed on-site or documented to occur on-site in the relevant databases. No other sensitive species were observed within the project area or buffer area.

There are no streams, channels, washes, or swales that meet the definitions of Section 1600 of the State of California Fish and Game Code (FGC) under the jurisdiction of the CDFW, Section 401 ("Waters of the State") of the Clean Water Act (CWA) under the jurisdiction of the Regional Water Quality Control Board (RWQCB), or "Waters of the United States" (WoUS) as defined by Section 404 of the CWA under the jurisdiction of the U.S. Army Corps of Engineers (Corps) within the subject parcel. Therefore, no permit from any regulatory agency will be required.

The proposed Project will not affect western Joshua trees as all trees are proposed to be avoided. To ensure no impacts to this species, any tree within 40 feet of active construction will be encircled by temporary construction fencing. This will be of a height and color to be visible from a distance. With this mitigation incorporated, no western Joshua trees will be affected. Should impacts to this species become unavoidable in the future, an incidental take permit (ITP) will be required from the CDFW. The ITP will need to detail all impacts to the species and what alternative mitigation measures are proposed.

Any Mojave yuccas that are within an area proposed for development, should be relocated to a suitable location within the parcel.

Since there is some habitat within the project site and adjacent area that is suitable for nesting birds in general, a preconstruction nesting bird survey is recommended before the commencement of any project-related work activities, within nesting bird season, to avoid any potential project-related impacts to nesting birds.

I hereby certify that the statements furnished herein, and in the attached exhibits present data and information required for this analysis to the best of my ability, and the facts, statements, and information presented are true and correct to the best of my knowledge and belief. This report was prepared in accordance with professional requirements and standards. Fieldwork conducted for this assessment was performed by me. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project proponent and that I have no financial interest in the project.

Please do not hesitate to contact me at 909-534-4547 should you have any questions or require further information.

Sincerely,

Gene Jennings Principal/Regulatory Specialist

Appendices:

Appendix A – Figures Appendix B – Site Photos Appendix C – Regulatory Framework Appendix D – Tables

Section 5 – REFERENCES

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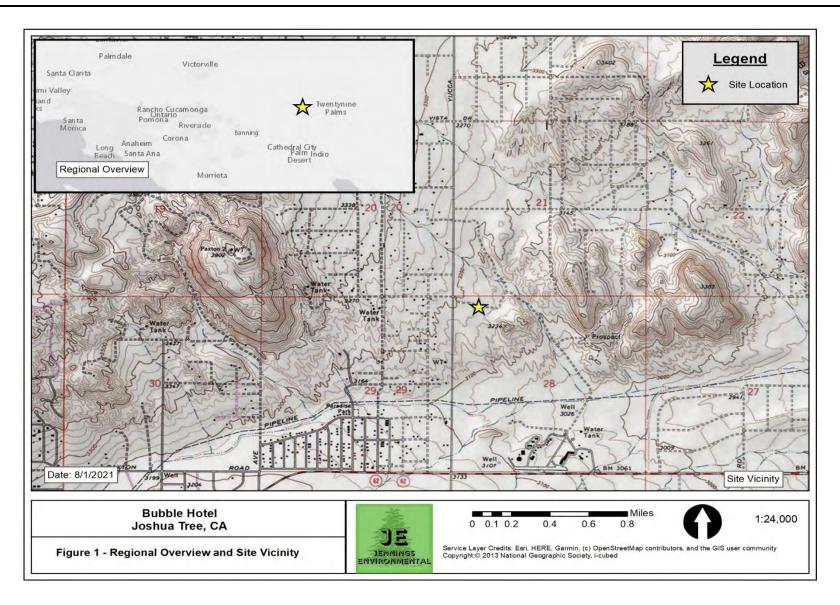
Sawyer, J.O., Jr., T. Keeler-Wolf, J. Evens

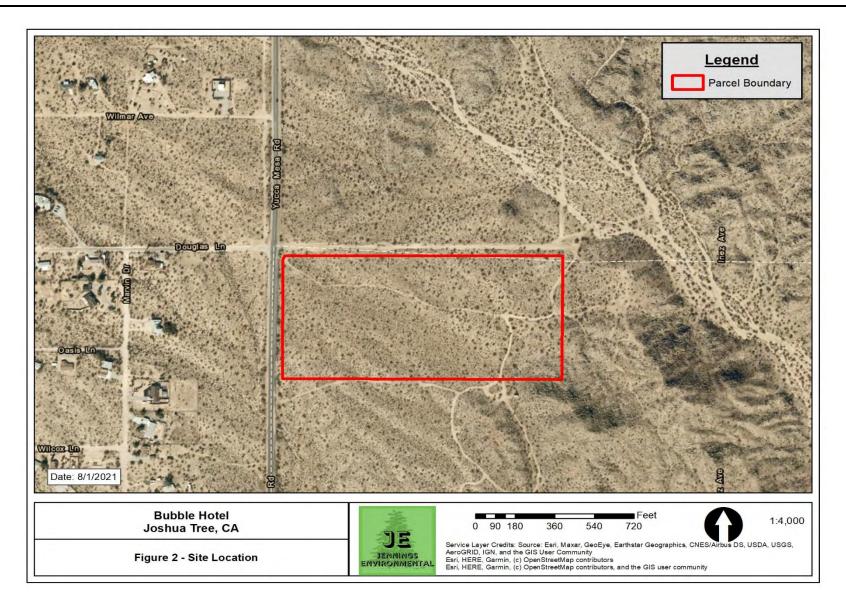
2009 *A Manual of* California *Vegetation, Second Edition*. California Native Plant Society, Sacramento, CA.

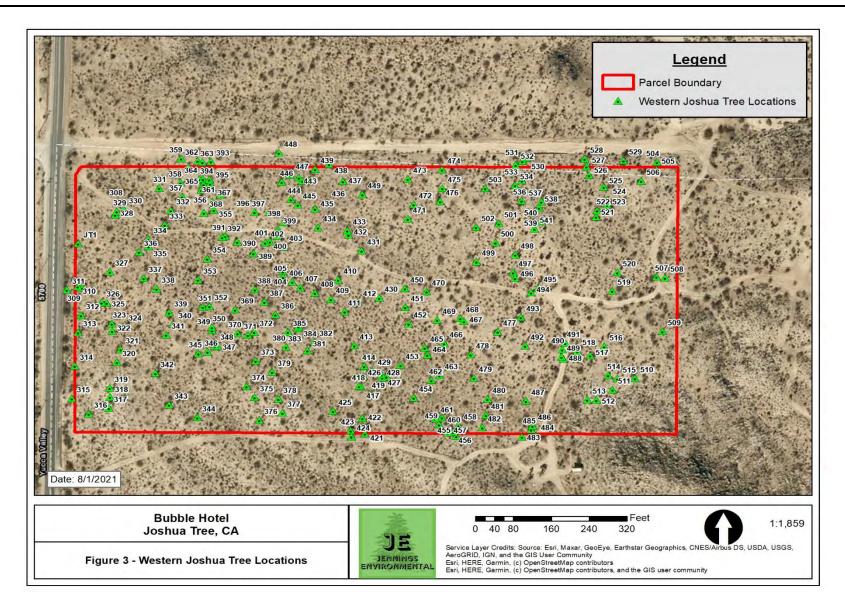
U.S. Department of Agriculture (USDA)

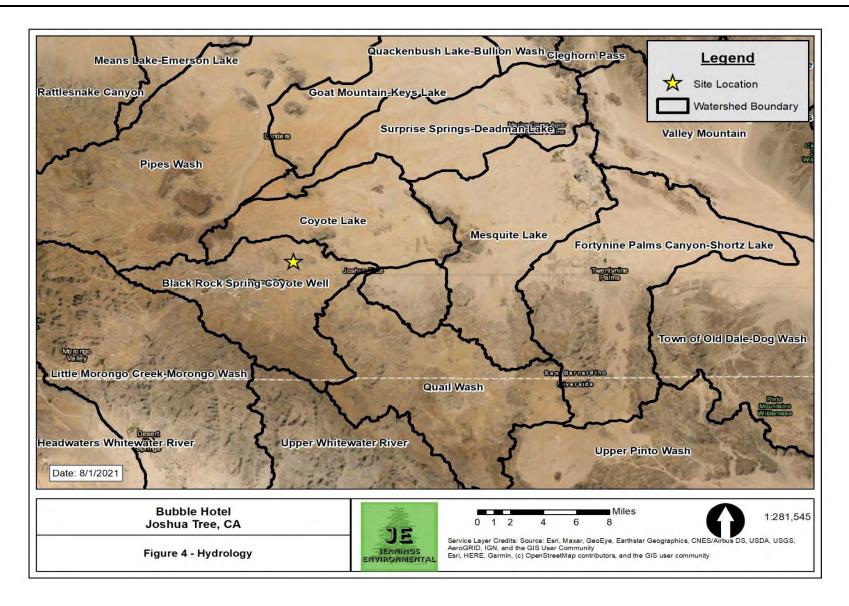
2020 Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions [Online Edition]. Website https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx [Accessed July 2021].

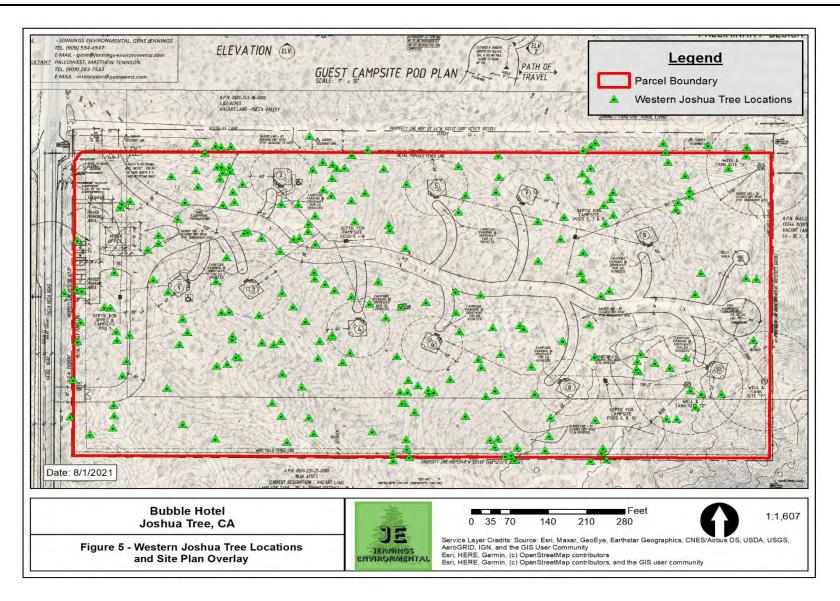
Appendix A - Figures





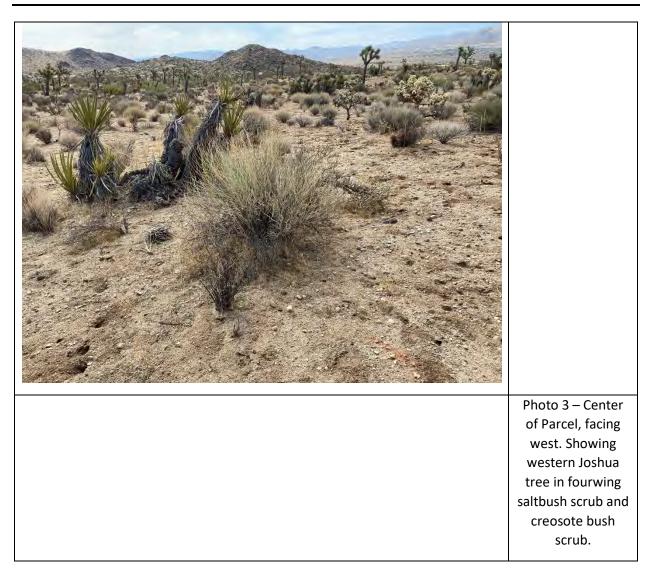


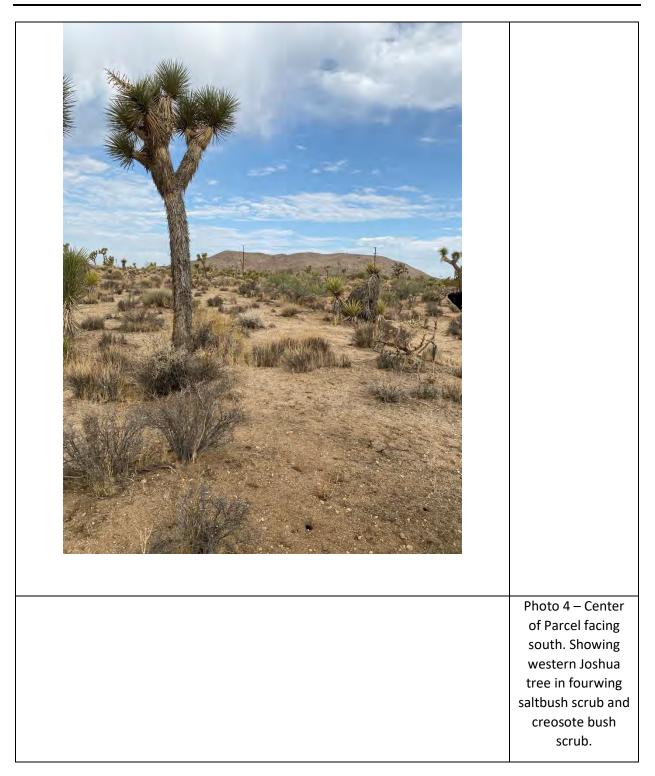


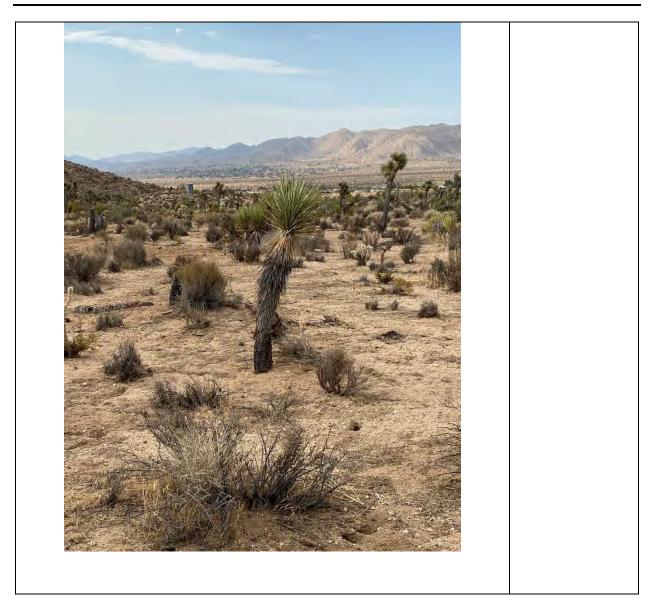


Appendix B - Photo

<image/>	Photo 1 – Northwest corner of parcel facing east. Showing creosote scrub with western Joshua trees.
	Photo 2 – Center of parcel, facing southeast. Showing a mix of
	bare ground, ruderal vegetation,
	fourwing saltbush scrub and western Joshua trees.







Appendix C – Regulatory Framework

1.1 FEDERAL JURISDICTION

1.1.1 United States Army Corps of Engineers

Pursuant to Section 404 of the CWA, the United States Army Corps of Engineers (USACE) regulates the discharge of dredged and/or fill material into waters of the United States. The term "waters of the United States" is defined by 33 Code of Federal Regulations (CFR) Part 328 and currently includes: (1) all navigable waters (including all waters subject to the ebb and flow of the tide), (2) all interstate waters and wetlands, (3) all other waters (e.g., lakes, rivers, intermittent streams) that could affect interstate or foreign commerce, (4) all impoundments of waters mentioned above, (5) all tributaries to waters mentioned above, (6) the territorial seas, and (7) all wetlands adjacent to waters mentioned above. Waters of the United States do not include (1) waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act (CWA), and (2) prior converted cropland. Waters of the United States typically are separated into two types: (1) wetlands and (2) "other waters" (non-wetlands) of the United States.

Wetlands are defined by 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support ... a prevalence of vegetation typically adapted for life in saturated soil conditions." In 1987, USACE published a manual (1987 Wetland Manual) to guide its field personnel in determining jurisdictional wetland boundaries. This manual was amended in 2008 to the USACE 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (2008 Arid West Supplement). Currently, the 1987 Wetland Manual and the 2008 Arid West Supplement provide the legally accepted methodology for identification and delineation of USACE-jurisdictional wetlands in southern California.

In the absence of wetlands, the limits of USACE jurisdiction in nontidal waters, including intermittent Relatively Permanent Water (RPW) streams, extend to the Ordinary High Water Mark (OHWM), which is defined by 33 CFR 328.3(e) as:

... that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

On January 9, 2001, the U.S. Supreme Court ruled (in Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers) (SWANCC) that USACE jurisdiction does not extend to previously regulated isolated waters, including but not limited to isolated ponds, reservoirs, and wetlands. Examples of isolated waters that are affected by this ruling include vernal pools, stock ponds, lakes (without outlets), playa lakes, and desert washes that are not tributary to navigable

or interstate waters or to other jurisdictional waters. A joint legal memorandum by EPA and USACE was signed on January 15, 2003.

In May 2007, USACE and EPA jointly published and authorized the use of the Jurisdictional Determination Form Instructional Guidebook (USACE 2007). The form and guidebook define how to determine if an area is USACE jurisdictional and if a significant nexus exists per the Rapanos decision. A nexus must have more than insubstantial and speculative effects on the downstream TNW to be considered a significant nexus. This guidebook is updated by the 2008 Arid West Supplement, the 2010 Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, and the 2011 Ordinary High Flows and the Stage-Discharge Relationship in the Arid West Region.

A joint guidance by EPA and USACE was issued on June 5, 2007, and revised on December 2, 2008, is consistent with the Supreme Court's decision in the consolidated cases Rapanos v. United States and Carabell v. United States (126 S. Ct. 2208 [2006]) (Rapanos), which addresses the jurisdiction over waters of the United States under the CWA (33 U.S.C. §1251 et seq.). A draft guidance was circulated in April 2011 to supercede both the 2003 SWANCC guidance and 2008 Rapanos decision; however, this guidance is not finalized and lacks the force of law.

USACE will continue to assert jurisdiction over Traditionally Navigable Waters (TNWs), wetlands adjacent to TNW, non-navigable tributaries of TNW that are Relatively Permanent Waters (RPW) where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months), and wetlands that directly abut such tributaries.

USACE generally will not assert jurisdiction over swales or erosional features (e.g., gullies or small washes characterized by low volume, infrequent, or short duration flow) or nontidal drainage ditches (including roadside ditches) that are (1) excavated wholly in and draining only uplands and (2) that do not carry a relatively permanent flow of water. USACE defines a drainage ditch as:

A linear excavation or depression constructed for the purpose of conveying surface runoff or groundwater from one area to another. An "upland drainage ditch" is a drainage ditch constructed entirely in uplands (i.e., not in waters of the United States) and is not a water of the United States, unless it becomes tidal or otherwise extends the ordinary high water line of existing waters of the United States.

Furthermore, USACE generally does not consider "[a]rtificially irrigated areas which would revert to upland if the irrigation ceased" to be subject to their jurisdiction. Such irrigation ditches are linear excavations constructed for the purpose of conveying agricultural water from the adjacent fields. Therefore, such agricultural ditches are not considered to be subject to USACE jurisdiction.

USACE will use fact-specific analysis to determine whether waters have a significant nexus with (1) TNW for nonnavigable tributaries that are not relatively permanent (non-RPW); (2) wetlands adjacent to nonnavigable tributaries that are not relatively permanent; and (3) wetlands adjacent to, but that do not directly abut, a relatively permanent nonnavigable tributary. According to USACE, "a significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters," including consideration of hydrologic and ecologic factors. A primary component of this determination lies in establishing the connectivity or lack of connectivity of the subject drainages to a TNW.

1.2 STATE JURISDICTION

The State of California (State) regulates discharge of material into waters of the State pursuant to Section 401 of the CWA as well as the California Porter-Cologne Water Quality Control Act (Porter-Cologne; California Water Code, Division 7, §13000 et seq.). Waters of the State are defined by Porter-Cologne as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code Section 13050(e)). Waters of the State broadly includes all waters within the State's boundaries (public or private), including waters in both natural and artificial channels.

1.2.1 Regional Water Quality Control Board

Under Porter-Cologne, the State Water Resources Control Board (SWRCB) and the local Regional Water Quality Control Boards (RWQCB) regulate the discharge of waste into waters of the State. Discharges of waste include "fill, any material resulting from human activity, or any other 'discharge' that may directly or indirectly impact 'waters of the state.'" Porter-Cologne reserves the right for the State to regulate activities that could affect the quantity and/or quality of surface and/or groundwaters, including isolated wetlands, within the State. Wetlands were defined as waters of the State if they demonstrated both wetland hydrology and hydric soils. Waters of the State determined to be jurisdictional for these purposes require, if impacted, waste discharge requirements (WDRs).

When an activity results in fill or discharge directly below the OHWM of jurisdictional waters of the United States (federal jurisdiction), including wetlands, a CWA Section 401 Water Quality Certification is required. If a proposed project is not subject to CWA Section 401 certification but involves activities that may result in a discharge to waters of the State, the project may still be regulated under Porter-Cologne and may be subject to waste discharge requirements. In cases where waters apply to both CWA and Porter-Cologne, RWQCB may consolidate permitting requirements to one permit.

1.2.2 California Department of Fish and Wildlife

Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Fish and Game Code, the California Department of Fish and Wildlife (CDFW) regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife.

CDFW defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation" (California Code of Regulations, Title 14, Section 1.72). The jurisdiction of CDFW may include areas in or near intermittent streams, ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams that are indicated on USGS maps, watercourses that may contain subsurface flows, or within the flood plain of a water body. CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." CDFW limits of jurisdiction typically include the maximum extents of the uppermost bank-to-bank distance and/or the outermost extent of riparian vegetation dripline, whichever measurement is greater.

In a CDFW guidance of stream processes and forms in dryland watersheds (Vyverberg 2010), streams are identified as having one or more channels that may all be active or receive water only during some high flow event. Subordinate features, such as low flow channels, active channels, banks associated with secondary channels, floodplains, and stream-associated vegetation, may occur within the bounds of a single, larger channel. The water course is defined by the topography or elevations of land that confine a stream to a definite course when its waters rise to their highest level. A watercourse is defined as a stream with boundaries defined by the maximal extent or expression on the landscape even though flow may otherwise be intermittent or ephemeral.

Artificial waterways such as ditches (including roadside ditches), canals, aqueducts, irrigation ditches, and other artificially created water conveyance systems also may be under the jurisdiction of CDFW. CDFW may claim jurisdiction over these features based on the presence of habitat characteristics suitable to support aquatic life, riparian vegetation, and/or stream-dependent terrestrial wildlife. As with natural waterways, the limit of CDFW jurisdiction of artificial waterways includes the uppermost bank-to-bank distance and/or the outermost extent of riparian vegetation dripline, whichever measurement is greater.

CDFW does not have jurisdiction over wetlands but has jurisdiction to protect against a net loss of wetlands. CDFW supports the wetland criteria recognized by USFWS; one or more indicators of wetland conditions must exist for wetlands conditions to be considered present. The following is the USFWS accepted definition of a wetland:

Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes

of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the lands supports hydrophytes, (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated withwater or covered by shallow water at some time during the growing season of each year (Cowardin et al. 1979).

In A Clarification of the U.S. Fish and Wildlife Service's Wetland Definition (Tiner 1989), the USFWS definition was further clarified "that in order for any area to be classified as wetland by the Service, the area must be periodically saturated or covered by shallow water, whether wetland vegetation and/or hydric soils are present or not; this hydrologic requirement is addressed in the first sentence of the definition." When considering whether an action would result in a net loss of wetlands, CDFW will extend jurisdiction to USFWS-defined wetland conditions where such conditions exist within the riparian vegetation that is associated with a stream or lake and does not depend on whether those features meet the three-parameter USACE methodology of wetland determination. If impacts to wetlands under the jurisdiction of CDFW are unavoidable, a mitigation plan will be implemented in coordination with CDFW to support the CDFW policy of "no net loss" of wetland habitat.

Appendix D – Tables

Table 1.	Species	Observed	On-Site
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Common Name	Scientific Name
Plants	
Creosote bush	Larrea tridentata
Western Joshua tree	Yucca brevifolia
Catclaw Acacia	Senegalia greggii
Fourwing saltbush	Atriplex canescens
Mojave yucca	Yucca schidigera
California buckwheat	Eriogonum fasciculatum
Hedgehog cactus	Echinocereus engelmannii
Beavertail prickly pear	Opuntia basilaris
Silver cholla	Cylindropuntia echinocarpa
Pencil cholla	Cylindropuntia ramosissima
Schismus grass	Schismus ssp.
Birds	
Mourning dove	Zenaida macroura
House sparrow	Passer domesticus
Cactus wren	Campylorhynchus brunneicapillus
Mammals	
Black-tailed jackrabbit	Lepus californicus
White-tailed Antelope Squirrel	Ammospermophilus leucurus leucurus
Reptiles	
Great-basin whiptail	Cnemidophorus tigris tigris

Scientific	Common	Federal/State			
Name	Name	Status	Other Status	Habitat	Potential to Occur
Astragalus	San Bernardino			Joshua tree woodland, pinyon and juniper woodland. Granitic or carbonate substrates. 290-	Suitable habitat for this species does not occur on site. As such, this species is considered absent
bernardinus Athene cunicularia	milk-vetch burrowing owl	None, None	G3, S3, 1B.2 G4, S3, CDFW- SSC	2290 m. Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	from the Project site. Some suitable habitat for this species does occur on site. 30-day pre-construction surveys are recommended.
Berberis fremontii	Fremont barberry	None, None	G5, S3, 2B.3	Pinyon and juniper woodland, Joshua tree woodland. Rocky, sometimes granitic. 1140-1770 m.	Suitable habitat for this species does not occur on site. As such, this species is considered absent from the Project site.
Boechera dispar	pinyon rockcress	None, None	G3, S3, 2B.3	Joshua tree woodland, pinyon and juniper woodland, Mojavean desert scrub. Granitic, gravelly slopes & mesas. Often under desert shrubs which support it as it grows. 1005-2805 m.	Suitable habitat for this species does not occur on site. As such, this species is considered absent from the Project site.

Table 2 – CNDDB Potential to Occur

Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None, None	G5T3T4, S3S4, CDFW-SSC	Desert border areas in eastern San Diego County in desert wash, desert scrub, desert succulent scrub, pinyon- juniper, etc. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	Suitable habitat for this species does not occur on site. As such, this species is considered absent from the Project site.
Erigeron parishii	Parish's daisy	Threatened, None	G2, S2, 1B.1	Mojavean desert scrub, pinyon and juniper woodland. Often on carbonate; limestone mountain slopes; often associated with drainages. Sometimes on grainite. 1050- 2245 m.	Suitable habitat for this species does not occur on site. As such, this species is considered absent from the Project site.
Gopherus agassizii	desert tortoise	Threatened, Threatened	G3, S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Some suitable habitat for this species does occur on site. However, this species is considered absent from the Project site as no burrows or individuals were observed.
Grusonia parishii	Parish's club- cholla	None, None	G3G4, S2, 2B.2	Mojavean desert scrub, Sonoran desert scrub, Joshua tree woodland. Sandy or rocky sites. 840-1600 m.	Suitable habitat for this species does not occur on site. As such, this species is considered absent from the Project site.
Lasiurus xanthinus	western yellow bat	None, None	G4G5, S3, CDFW-SSC	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly	Suitable habitat for this species does not occur on site. As such, this species is considered absent from the Project site.

Jennings Environmental

				palms. Forages over water and among trees.	
Linanthus bernardinus	Pioneertown linanthus	None, None	G1, S1, 1B.2	Joshua tree woodland, pinyon and juniper woodland. 1120- 1345 m.	Suitable habitat for this species does not occur on site. As such, this species is considered absent from the Project site.
Linanthus maculatus ssp. maculatus	Little San Bernardino Mtns. linanthus	None, None	G2T2, S2, 1B.2	Desert dunes, Sonoran desert scrub, Mojavean desert scrub, Joshua tree woodland. Sandy places. Usually in light-colored quartz sand; often in wash or bajada. 135-1220 m.	Suitable habitat for this species does not occur on site. As such, this species is considered absent from the Project site.
Monardella robisonii	Robison's monardella	None, None	G3, S3, 1B.3	Pinyon and juniper woodland. Rocky desert slopes, often among granitic boulders. 610- 1615 m.	Suitable habitat for this species does not occur on site. As such, this species is considered absent from the Project site.
Paranomada californica	California cuckoo bee	None, None	G1, S1,	Adults are active in spring and summer and can be found in parks, gardens, meadows and other open habitats. They are known to be good pollinators of flowers, making them a beneficial insect in the garden and on the farm.	Suitable habitat for this species does not occur on site. As such, this species is considered absent from the Project site.

			1		
				Frequents a wide variety of	
				habitats, most common in	
				lowlands along sandy washes	
				with scattered low bushes.	
				Open areas for sunning, bushes	Suitable habitat for this species
				for cover, patches of loose soil	does not occur on site. As such,
Phrynosoma	coast horned		G3G4, S3S4,	for burial, and abundant supply	this species is considered absent
blainvillii	lizard	None, None	CDFW-SSC	of ants and other insects.	from the Project site.
				Chaparral, Mojavean desert	
				scrub, pinyon and juniper	
				woodland. Rocky or sandy	Suitable habitat for this species
	Latimer's			substrate; sometimes in	does not occur on site. As such,
Saltugilia	woodland-			washes, sometimes limestone.	this species is considered absent
latimeri	gilia	None, None	G3, S3, 1B.2	120-2200 m.	from the Project site.
				Chaparral, lower montane	Suitable habitat for this species
				coniferous forest, pinyon and	does not occur on site. As such,
Streptanthus	southern			juniper woodland. Open, rocky	this species is considered absent
campestris	jewelflower	None, None	G3, S3, 1B.3	areas. 605-2590 m.	from the Project site.
				Desert resident; primarily of	
				open desert wash, desert	
				scrub, alkali desert scrub, and	
				desert succulent scrub	
				habitats. Commonly nests in a	
				dense, spiny shrub or densely	Suitable habitat for this species
				branched cactus in desert wash	does not occur on site. As such,
Toxostoma	Le Conte's		G4, S3, CDFW-	habitat, usually 2-8 feet above	this species is considered absent
lecontei	thrasher	None, None	SSC	ground.	from the Project site.

Coding and Terms
E = Endangered $T = Threatened$ $C = Candidate$ $FP = Fully Protected$ $SSC = Species of Special Concern$ $R = Rare$
State Species of Special Concern: An administrative designation given to vertebrate species that appear to be vulnerable to extinction because of declining populations, limited acreages, and/or continuing threats. Raptor owls are protected under section 3502.5 of the California Fish and Game code: "It is unlawful to take, possess or destroy any birds in the orders Falconiformes or Strigiformes or to take, possess or destroy the n or eggs of any such bird."
State Fully Protected: The classification of Fully Protected was the State's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were cree for fish, mammals, amphibians and reptiles. Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessicientific research and relocation of the bird species for the protection of livestock.
 Global Rankings (Species or Natural Community Level): G1 = Critically Imperiled – At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors. G2 = Imperiled – At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors. G3 = Vulnerable – At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors. G4 = Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors. G5 = Secure – Common; widespread and abundant. ? = Uncertainty in the exact status of an element (could move up or down one direction from current rank)
Subspecies Level: Taxa which are subspecies or varieties receive a taxon rank (T-rank) attached to their G-rank. Where the G-rank reflects the condition of the entire species, the T-rank reflects the global situa of just the subspecies. For example: the Point Reyes mountain beaver, <i>Aplodontia rufa</i> ssp. <i>phaea</i> is ranked G5T2. The G-rank refers to the whole species range i.e., <i>Aplodontia rufa</i> . The T-rank refers only to the global condition of ssp. <i>phaea</i> .
State Ranking: S1 = Critically Imperiled – Critically imperiled in the State because of extreme rarity (often 5 or fewer populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpating from the State. S2 = Imperiled – Imperiled in the State because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the S S3 = Vulnerable – Vulnerable in the State due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the State S4 = Apparently Secure – Uncommon but not rare in the State; some cause for long-term concern due to declines or other factors. S5 = Secure – Common, widespread, and abundant in the State.
 California Rare Plant Rankings (CNPS List): 1A = Plants presumed extirpated in California and either rare or extinct elsewhere. 1B = Plants rare, threatened, or endangered in California and elsewhere. 2A = Plants presumed extirpated in California, but common elsewhere. 2B = Plants rare, threatened, or endangered in California, but more common elsewhere. 3 = Plants about which more information is needed; a review list. 4 = Plants of limited distribution; a watch list.
Threat Ranks: .1 = Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat) .2 = Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat) .3 = Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

ID Number	Height (ft)	DBH (inches)	Latitude/Longitude	Healthy	Fair/ Poor	Clonal	Transplan t	Discard
Humber	(,	(2011000, 201181000	nearing			-	2.000.0
			34.1489319875836 /					
308	10	5	-116.369460001587	х			х	
			34.1486510261893 /					
309	15	8	-116.369432006031		х			Х
			34.1486589889973 /					
310	4	2	-116.369461007416	Х			Х	
			34.1486390400677 /					
311	6	3	-116.369537031278	Х			Х	
			34.1484770178794 /					
312	6	3	-116.369438041001	Х			Х	
313	20	1.4	34.1483689751476 / -116.369458995759		v			v
515	20	14	-110.309458995759		Х			Х
			34.148155990988 / -					
314	7.5	6	116.369481962174	x			х	
514	7.5	0	110.303401302174	~			~	
			34.147949963808 / -					
315	7	4	116.369501994922	х			х	
316 (2	6 and		34.1478519793599 /					
Trees)	10	4 and 6	-116.369382971897		х	х		х

Table 3 – Detailed Joshua Tree Information

		1		1		-	- 1	
			34.1478880215436 /					
317	12	7	-116.369242994114	х			Х	
240			34.1479570046067 /					
318	9	4	-116.369236037135	Х			X	
			34.148016013205 / -					
319	7	3	116.369238970801		x	х		x
			34.1481790412217 /					
320	8	5	-116.369185997173	Х			Х	
221	4 5	10	34.1482600104063 /		X			N N
321	15	12	-116.369161019101		X			X
			34.1483770217746 /					
322	10	6	-116.3692200277	х			x	
			34.1484239604324 /					
323	12	8	-116.369223967194	Х		_	Х	
224	20	14	34.1484050173312 / -116.369142998009		v	v		×
324	20	14	-110.309142998009		X	X		X
			34.1485559754073 /					
325	7	6	-116.369260009378	х			х	
			34.1485579870641 /					
326	6	4	-116.369295967742	Х			Х	

rr								
	1 - 4	1 - 3						
	2 - 5	2 - 3						
	3 - 7	3 - 4						
327	4 - 10	4 - 8						
(Group	5 - 7	5 - 4	34.1487540397793 /	1, 2, 3,			1, 2, 3, 5,	
of 6)	6 - 6	6 - 4	-116.369236037135	5,6	4		6	4
			34.1491149645298 /					
328	3	1	-116.369201000779	х			х	
520	5	<u> </u>	110.505201000775	~			~	
220	-	2	34.1491360031068 /	N			X	
329	7	3	-116.369192032143	Х			Х	
			34.1491489950567 /					
330	8	4	-116.369140986353	Х			Х	
			34.1492869611829 /					
331	7	3	-116.368892965838		х	х		Х
			34.1491439659148 /					
332	8	6	-116.368810990825	х			х	
	-							
			24 140052016427 /					
333	20	13	34.149052016437 / - 116.368856001645		х	Х		х
555	20	15	110.308630001045		^	^		^
	-	_	34.1489599831402 /					
334	8	7	-116.3689689897	Х			Х	
			34.1489159781485 /					
335	8	7	-116.3689689897	Х			Х	
			34.1488790139555 /					
336	7	4	-116.369034033268	Х			х	

				1		1		
			34.1487129684537 /					
337	12	6	-116.36900100857	x			x	
			110.00000100007	~			~	
			34.148644991219 / -					
338	10	8	116.368911992758	Х			Х	
	10	_	34.1484940331429 /					
339	12	7	-116.368823982775	Х			Х	
			34.1484210267663 /					
340	15	8	-116.36879498139	x			x	
0.10	10		110100079100109					
			34.1483529657125 /					
341	7	5	-116.368843009695		Х			Х
			34.1481089685112 /					
342	10	4	-116.368918027728	Х			Х	
			34.1479099821299 /					
343	7	3	-116.368821971118	x			х	
	-			1				
			34.1478280071169 /					
344	9	3	-116.368626002222	Х			Х	
245		2	34.1482340265065 /	v			V	
345	6.5	3	-116.368618039414	X			X	
			34.1482450067996 /					
346	4	2	-116.368554001674	х			х	
				•				

· · · · ·				1		
247	0		34.1482790373265 /			
347	8	4	-116.368486024439	Х	X	
348	1	0.5	34.1482849884778 / -116.368503039702	x	x	
349	6.5	4	34.1483809612691 / -116.36852399446	x	x	
350	4	3	34.1484009940177 / -116.368522988632	x	x	
351	8	3	34.1485309973359 / -116.368589038029	x	x	
352	5	2	34.1485350206494 / -116.36854302138	x	x	
353	15	8	34.1487039998173 / -116.36862097308	x	x	
354	7	4	34.1488370206207 / -116.368557019159	x	x	
355	9	5	34.1491469833999 / -116.368512008339	x	x	
356	8	6	34.149273969233 / - 116.368599012494	x	x	

rr				1			
357	9	3	34.1492309700697 / -116.368732033297	x		x	
			34.1493199858814 /				
358	9	3	-116.368745025247	Х		х	
250	12	c	34.1494739614427 /				
359	12	6	-116.368739996105		X		X
360	7	4	34.1494179703295 / -116.368690039962	x		x	
361	5	3	34.1493410244584 / -116.368616027757	x		x	
362	3	2	34.1492749750614 / -116.369476011022	x		x	
363	10	6	34.1490759886801 / -116.369494032114	x		x	
364	7	4	34.1493430361151 / -116.368589960038	x		x	
365	2	2	34.1493100114166 / -116.368583003059	x		x	
366	8	5	34.149244967848 / - 116.368462974205	x		x	

	r	r		1	1	r	1	1
367	6	3	34.1492019686847 / -116.368521982803	x			x	
368	10	6	34.1491299681365 / -116.368580991402	x			x	
369	6	5	34.1485149879008 / -116.3683629781		x			x
370	6	5	34.1483640298247 / -116.368345962837	x			x	
371	10	5	34.1483529657125 / -116.368273962289	x			x	
372	5	4	34.1483719926327 / -116.368229035288	x			x	
	6		34.1481890156865 /					
373	inches	N/A	-116.368219982832 34.1480269934982 /	X			X	
374	18	11	-116.368283014744 34.1479559987783 /		X	X		X
375	4	3	-116.368227023631	x			x	
376	12	5	34.1478109918534 / -116.368193998932		х	x		x

			ſ	1		1	1	
377	1	2	34.1478580143302 / -116.368032982572	x			x	
			34.1479460243135 /					
378	5	3	-116.368060978129	Х			Х	
		_	34.1481180209666 /					
379	12	5	-116.368102971464		X			Х
380	14	6	34.1482780314981 / -116.368005992844	V			v	
380	14	0	-110.308005992844	X			Х	
			34.148253975436 / -					
381	15	8	116.367857968434		x			х
501	15	0	110.307037300434		~			~
			34.1483080387115 /					
382	12	7	-116.367811029776	х			х	
			34.1483949590474 /					
383	3	3	-116.367926029488	Х			Х	
			34.148407028988 / -					
384	12	6	116.367921000346	Х			Х	
205		40	34.1483709868043 /					
385	20	10	-116.367995012551		X			Х
			24 140402000007 /					
386	17	8	34.1484829690307 / -116.368082016706		x			x
500	1/	0	-110.300002010/00		^			^

12	6	34.1485640220344 / -116.368157034739				
		110.300137034733		x		x
7	4	34.1486409679055 / -116.368224006146	x		x	
10	7	34.1488719731569 / -116.368235992267	x		x	
	11	34.1489449795335 /				
		34.1489810217171 /		x		x
		34.1489739809185 /				x
		34.1494550183415 /	x		x	~
		34.1493390128016 /				
		34.1493150405585 /				
		34.14913399145 / -				
		10 7 10 11 12 6 9 4 8 3 6 2 1 1	7 4 -116.368224006146 34.1488719731569 / -116.368235992267 34.1489719731569 / -116.368235992267 10 11 34.1489449795335 / -116.368347974494 10 11 34.1489810217171 / -116.368431961163 12 6 34.1489739809185 / -116.368431961163 9 4 34.1489739809185 / -116.368451993912 9 4 34.1499739809185 / -116.368451993912 8 3 34.1494550183415 / -116.368532963097 6 2 34.1493390128016 / -116.36854302138 1 1 34.1493150405585 / -116.36853698641 1 1 34.1493150405585 / -116.36853698641	7 4 -116.368224006146 X 10 7 34.1488719731569/ -116.368235992267 X 10 7 34.1489449795335/ -116.368347974494 X 10 11 34.1489810217171/ -116.368431961163 X 12 6 34.1489739809185 / -116.368451993912 X 9 4 34.1489739809185 / -116.368451993912 X 8 3 34.1494550183415 / -116.368532963097 X 6 2 34.1493390128016 / -116.36854302138 X 1 1 34.1493150405585 / -116.36853698641 X	7 4 -116.368224006146 X I 10 7 34.1488719731569/ X I 10 7 -116.368235992267 X I I 10 11 -116.368235992267 X I I 10 11 -116.368347974494 X I I 10 111 -116.368347974494 X I I 11 -116.368347974494 X I I I 12 6 -116.368431961163 X I I I 12 6 -116.368451993912 X I	7 4 -116.368224006146 X X X 10 7 34.1488719731569 / .16.368235992267 X X X 10 7 -116.368235992267 X X X 10 11 34.1489449795335 / .16.368347974494 X X X 10 11 -116.368347974494 X X X 11 34.1489810217171 / .16.368431961163 X X X 12 6 -116.368431961163 X X X 9 4 34.1489739809185 / .16.368451993912 X X X 8 3 -116.368451993912 X X X 8 3 -116.368532963097 X X X 6 2 34.1493390128016 / .16.368532963097 X X X 1 1 34.1493150405585 / .16.36853698641 X X X 1 1 34.1493150405585 / .16.36853698641 X X X 1 34.14913399145 / - X X X X

		1	ſ	1				
			34.1491309739649 /					
397	4.5	2	-116.368126021698	Х			Х	
			34.1490690317004 /					
398	9	5	-116.368024013936		Х	Х		Х
399	15	7	34.149023015052 / - 116.368065001443	x			x	
400	10	6	34.1489820275455 / -116.368068018928		x			x
401	9	5	34.1489459853619 / -116.368120992556	x			x	
402	14	9	34.1489400342106 / -116.368153011426		x			x
403	17	10	34.148912038654 / - 116.368023008108		x			x
404	12	8	34.148755967617 / - 116.368030970916		x			x
405	13	9	34.1487200092524 / -116.368027031421		x			x
406	16	9	34.1486910078674 / -116.367963999509		x			x

		[1	-	1	
407	10	8	34.1486549656838 / -116.367908008396		x		x
408	16	12	34.1486200131475 / -116.367804994806		x		x
408	10	12	-110.307804994800		^		
			34.1485810372978 /				
409	9	8	-116.367696030065	Х		X	
			24 1407020000172 /				
410	7	6	34.1487039998173 / -116.367643978446	х		x	
110	,		110.007010070110				
			34.1485030017793 /				
411	5	4	-116.367597039788	Х		X	
			24 4405 (2040) 776 /				
412	5	4	34.1485620103776 / -116.367507018148	х		x	
112		· ·	110.007007010110				
			34.1482880059629 /				
413	11	6	-116.367530990391		Х		Х
			24 1401540051506 /				
414	8	6	34.1481549851596 / -116.367462007328		x		x
			34.1480910312384 /				
415	5	4	-116.367466030642		X		X
			34.14809002541 / -				
416	9	8	116.367510035634	x		x	
			•				

				1	-			
417	11	8	34.1480259876698 / -116.367483967915		x			x
			34.1480269934982 /					
418	9	6	-116.367497965693	Х		_	Х	
			34.1479779593646 /					
419	15	11	-116.367424037307		х			х
115			110.007 12 1037 307					<i>x</i>
			34.1478259954601 /					
420	10	9	-116.367474999278		Х			Х
			24 4 4 7 7 2 0 0 4 4 0 4 2 /					
421	3	2	34.147728011012 / - 116.36745496653	x			х	
721	5	۷	110.30743430033					
			34.1477750334888 /					
422	12	9	-116.367469970136		Х	Х		Х
423	14	9	34.1477470379322 / -116.367554962635		x			x
425	14	9	-110.307334902033		^			^
			34.1477079782634 /					
424	6	4	-116.36755102314		Х			Х
425	6	4	34.1478700004518 / -116.367678008973		x			x
425	0	4	110.307070000573		^			^
			34.14809002541 / -					
426	9	6	116.36730602011		Х			Х

			1	- r - r		
4	2		v		×	
4	5	110.30/33002/324	^			
		34,1481020115315 /				
2	2	-116.367340972647	х		x	
		34.1481249779462 /				
7	5	-116.367404004558		X		X
12	7			v		x
12	/	-110.307333370233		^		
		34.1488899942487 /				
4	4	-116.367481034249	х		Х	
_	_	34.1489899903535 /				
7	6	-116.367572983726		X		X
4	3			x		х
		110.007001000000				
		34.1490370128303 /				
1	2	-116.367785967886	Х		х	
0	F	-				v
Э	5	110.30/00000035		^		X
		34.1491960175335 /				
4	3	-116.36772503145	Х		x	
	7 12 4 7 4 1 1 9	2 2 7 5 12 7 4 4 7 6 4 3 1 2 9 5	2 2 34.1481020115315 / -116.367340972647 2 2 34.1481249779462 / -116.367404004558 7 5 116.367404004558 12 7 34.1485900059342 / -116.367355976253 4 4 34.1488899942487 / -116.367481034249 4 4 34.1489899903535 / -116.367572983726 7 6 34.1489899903535 / -116.367572983726 4 3 34.1490179859101 / -116.367581030353 1 2 34.1490370128303 / -116.367785967886 9 5 34.149155030027 / - 116.367806000635 9 5 34.14919503027 / - 9 5 34.14919503027 / -	4 3 116.367336027324 X 2 2 34.1481020115315 / -116.367340972647 X 3 34.1481249779462 / -116.367404004558 X 12 7 34.1485900059342 / -116.367355976253 X 4 4 34.1488899942487 / -116.367481034249 X 4 34.1488899942487 / -116.367481034249 X 7 6 34.1489899903535 / -116.367572983726 X 4 3 34.1490179859101 / -116.367581030353 X 1 2 34.1490370128303 / -116.367785967886 X 9 5 34.149155030027 / - 116.367806000635 X	4 3 116.367336027324 X Image: State of the s	4 3 116.367336027324 X X X 2 2 34.1481020115315 / 116.367340972647 X X X 2 2 -116.367340972647 X X X 7 5 -116.367340972647 X X X 12 7 5 -116.36740004558 X X X 12 7 -116.367355976253 X X X X 4 4 -116.367581030255 X X X X 4 34.1489899903335 / 7 X X X X X 4 3 34.1490179859101 / 7 X X X X 4 3 -116.367781030353 X X X X 5 34.1490370128303 / 7 X

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437	6	4	34.1493309661746 / -116.367611959576		x		x
438	9	7	34.1494380030781 / -116.367709022015	x		x	
			34.1494069900363 /				
439	7	5	-116.367804994806		X		X
440	9	6	34.1493359953165 / -116.367848999798	x		x	
441	10	5	34.1493319720029 / -116.367894010618		x		x
442	11	7	34.1493540164083 / -116.367917982861		x		x
443	6	4	34.1492769867181 / -116.367923012003	x		x	
444	8	5	34.1492140386253 / -116.367975985631	x		x	
445	3	3	34.1491810139268 / -116.367927035316	x		x	
446	14	8	34.1493250150233 / -116.368038011714		x		x

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			34.1493670083582 /					
447	12	7	-116.367979003116		Х			Х
			34.1495100036263 /					
448	20	12	-116.368058966472		Х			X
			34.1492459736764 /					
449	10	6	-116.367474999278		х			x
	10	0	110.307 +7 +355270					
			34.1486490145325 /					
450	8	4		х			Х	
			34.1485299915075 /					
451	3	1	-116.367174005135	Х			Х	
			24 4 40 425 0 720004 /					
452	10	4	34.1484259720891 / -116.367152966558	x			x	
452	10	4	-110.307132900338	^ 			^	
			34.1481610201299 /					
453	2	1	-116.367209041491	х			х	
								1
			34.1479559987783 /					
454	5	2	-116.367114996537	Х			Х	
			· · · · · · · · · · ·					
455	-	A	34.147712001577 / -	v			V	
455	7	4	116.366818025708	Х			X	
			34.1477389913052 /					
456	8	3	-116.366839986294		х	х		x
,		-		1	1	1	1	1

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457	6	3	34.1477349679917 / -116.366875022649	x			x	
437	0	5	-110.300873022049	^			^	
			34.1477799788117 /					
458	7	5	-116.366804027929	х			х	
			34.1477850079536 /					
459	10	6	-116.366937970742	Х			Х	
			24 1479200197726					
460	3	2	34.1478300187736 / -116.366918021813	x			х	
100			110.000010021010	~			~	
			34.1478239838033 /					
461	9	5	-116.366966972127	х			Х	
162	10	-	34.1480659693479 /	X			V	
462	12	7	-116.366993039846	Х			Х	
			34.148097988218 / -					
463	10	6	116.366935959085	х			х	
			34.1482269857078 /					
464	12	8	-116.367021035403	Х			Х	
			34.1482719965279 /					
465	7	5	-116.367037966847	x			х	
105	,							
			34.1483009979128 /					
466	10	8	-116.366904024034		х			Х

		F		r	- r		
			34.1484419815242 /				
467	15	6	-116.366764968261		X		Х
			34.1484610084444 /				
468	10	5	-116.366790030151	Х		X	
469	9	5	34.1484490223228 / -116.366952974349	x		x	
405	5	5	-110.300332374343	~		~ ~	
470	12	7	34.1486309934407 / -116.367026986554	x		x	
471	9	5	34.1490919981151 / -116.367159001529		x		x
472	8	4	34.149184031412 / - 116.367118014022	x		x	
473	10	6	34.1493459697812 / -116.367159001529	x		x	
474	9	6	34.1494049783796 / -116.366921039298		x		x
475	10	7	34.1492850333452 / -116.366917015984	x		x	
476	14	10	34.1492019686847 / -116.366933025419		x		x

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			34.1483750101178 /				
477	15	9	-116.366530023515		X		Х
470	10	10	34.1482310090214 /		X		Y
478	12	10	-116.366719035431		X		Х
479	10	5	34.1480809729546 / -116.366696991026		x		x
480	13	8	34.1479480359703 / -116.366602024063	x		x	
481	12	9	34.1478450223803 / -116.366611998528	x		x	
482	12	8	34.1477659810334 / -116.366635970771	x		x	
483	15	10	34.1477079782634 / -116.366360960528		x		x
484	12	8	34.1477140132337 / -116.366263981908		x		x
485	8	7	34.1477539949119 / -116.36629499495	x		x	
486	10	7	34.1477769613265 / -116.366285020485		x		x

			34.1479349602013 /				
487	12	8	-116.366331959143	х		Х	
100	0		34.1482040192931 /		Ň		V
488	8	9	-116.366072036325		X		X
			34.1482170112431 /				
489	9	7	-116.366084022447	х		Х	
100	10	10	34.1482620220631 /		Ň		N.
490	12	10	-116.366079999133		X		X
			34.148304015398 / -				
491	12	12	116.366058960556		х		х
492	14	8	34.1482870001345 / -116.366337994113		х		v
492	14	8	-110.300337994113		^		X
			34.1484660375863 /				
493	17	13	-116.366368001326		х		Х
494	15	11	34.1486249584704 / -116.366297006607		x		v
494	13		-110.30023/00000/		^		X
			34.148653037846 / -				
495	14	11	116.366248978301		Х		Х
496	12	6	34.1487149801105 / -116.366408988833		х		x
490	12	0	-110.30040030032		^		^

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497	8	5	34.1487520281225 / -116.366421980783		x		x
498	17	7	34.1488660220056 / -116.366406977176		x		x
499	14	8	34.1488210111856 / -116.366678969934		x		x
500	13	8	34.1489419620484 / -116.366545027121		x		X
501	14	8	34.1490629967302 / -116.366522982716	x		X	
502	12	8	34.1490390244871 / -116.366681987419	x		x	
503	16	9	34.1492860391736 / -116.36661702767		x		x
504	9	7	34.1494530066847 / -116.365421013906	x		x	
505	10	7	34.1494049783796 / -116.365424031391	x		x	
506	10	5	34.1493339836597 / -116.365529978647	x		x	

					-			
507	12	7	34.1487259604036 / -116.365423025563	x			x	
508	16	6	34.1487200092524 / -116.365362005308		x			x
509	7	6	34.1483790334314 / -116.3653800264	x			x	
510	11	7	34.1480809729546 / -116.365571971982		x	x		x
511	5	4	34.148007966578 / - 116.365728965029	x			x	
512	4	3	34.1479409951716 / -116.365840025246	x			x	
513	2	2	34.1479440126568 / -116.365903979167	x			x	
514	11	8	34.1480999998748 / -116.36575997807		x			x
			110.0007.007					
515	6	4	34.1480789612978 / -116.365694012492		x			x
512	0	4	-110.303034012432		^			^
F10	1.4	0	34.1482819709926 /		v			
516	14	8	-116.365786967799		Х			Х

		F		1	- I I		
			34.1482249740511 /				
517	10	7	-116.365884030237	Х		х	
			34.1482529696077 /				
518	13	7	-116.365974973887		x		x
510	10	7	34.1486360225826 /		X		N N
519	12	7	-116.365731982514		X		X
			34.1487530339509 /				
520	13	8	-116.365695018321	Х		X	
			34.1491059958934 /				
521	10	5	-116.365845976397		x		x
522	10	-	34.1491459775716 /		v		V
522	10	5	-116.365836001932		X		X
			34.1491820197552 /				
523	10	6	-116.365768024697		X		Х
			34.1492120269685 /				
524	11	6	-116.365766013041		x		х
525	11	8	34.1492960136383 / -116.365790991112	x		x	
525	11	ŏ	-110.202/20231115	^		<u>^</u>	
			34.1493700258433 /				
526	12	8	-116.36589501053	Х		Х	

· · · · · · · · · · · · · · · · · · ·			ſ	1	1	1	1	
			34.1494250111281 /					
527	20	12	-116.365911019966		Х			Х
			34.149474967271 / -					
528	18	11	116.365925017744		х			x
			34.1494629811495 /					
529	15	11	-116.365654030814	Х			Х	
530	12	6	34.1494779847562 / -116.3663339708	x			x	
550	12	0	-110.3003339708	^			^	
			34.1494580358266 /					
531	15	7	-116.366360960528	х			х	
			34.1494349855929 /					
532	10	6	-116.366406977176		Х			Х
			34.1493349894881 /					
533	12	6	-116.366362972185	х			х	
			34.1493049822747 /					
534	10	8	-116.366412006318	Х			Х	
			34.149266006425 / -					
535	12	8	116.366380993276	x			x	
			34.1492069978266 /					
536	9	4	-116.366363978013	Х			х	

			24 1402000628564 /				
F 2 7	11	7	34.1492009628564 /		v		v
537	11	/	-116.366227017715		Х		Х
			34.149162992835 / -				
538	7	3	116.366242021322	Х		Х	
			34.1491289623081 /				
539	9	4	-116.366284014657	х		х	
			34.1490749828517 /				
540	2	1	-116.366226011887	х		х	
540	۷.	1	110.300220011007	~		<u>л</u>	
	_		34.1490279603749 /				
541	8	3	-116.366274040192	Х		Х	