

CALIFORNIA ENDANGERED SPECIES ACT INCIDENTAL TAKE PERMIT APPLICATION

For

**PHELAN COMMUNITY PARK EXPANSION
APN's: 3066-261-08& 10 and 3066-251-14
PHELAN, SAN BERNARDINO COUNTY, CALIFORNIA**

Prepared for:

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Phelan Park Expansion
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Phelan, California

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1.0 INTRODUCTION AND SUMMARY

Phelan Pinon Hills Community Services District (Applicant) is submitting this application for a California Endangered Species Act (CESA) Incidental Take Permit (ITP) to the California Department of Fish and Wildlife (CDFW), pursuant to Fish and Game Code section 2081, subdivisions (b) and (c), and California Code of Regulations, Title 14, section 783.0 et seq. CESA prohibits the take of any species of wildlife or plant the California Fish and Game Commission designates as an endangered, threatened, or candidate species. CDFW may authorize the take of any such species by permit if the conditions set forth in Fish and Game Code section 2081, subdivisions (b) and (c) are met (see California Code of Regulations Title 14, section 783.4).

The Applicant is seeking a CESA section 2081 ITP for the incidental take of the State-listed threatened (candidate) western Joshua tree (*Yucca brevifolia*) during development activities proposed for a park expansion (Figures 1, 2 and 4). This permit application provides a full description of the Project and the anticipated impacts of the taking of the Covered Species. The application also describes the management actions that will be implemented by the Applicant to minimize and mitigate the impacts of the taking for each Covered Species.

1.1 Project Location:

The 19-acre site is bordered on the west by Phelan Community Park and a storage yard, on the south and east by single family homes, and on the north by vacant land and Phelan Elementary School. The project is located in Phelan, an unincorporated community of San Bernardino County, east of Highway 138.

1.2 Applicant Information

Permittee: Phelan Pinon Hills Community Services District

Principal Contact: George Cardenas (gcardenas@pphcsd.org)

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1.3 Species Covered by This Incidental Take Permit Application

Joshua tree (*Yucca brevifolia*):

State threatened - Candidate

Background Information: Joshua trees are xerophytic monocotyledonous, evergreen trees endemic to the Mojave Desert and are the tallest species (ranging between 16-40 feet) in the *Asparagaceae* (yucca) family. Joshua trees are long-lived, with some populations having been documented to have a median age of 89 years, and much like the surrounding native desert flora, they are characterized by infrequent germination and slow growth. Joshua trees have short leaves (19-37 centimeters) and short, white-petaled flowers. Through a symbiotic relationship, the Joshua trees are only pollinated by the Yucca moth (*Tegeticula synthetica*) and in return the Yucca moth reproduce in the flower, which produce a spongy indehiscent fruit in dense heavy panicles. Seed cache and dispersion primarily occurs from rodents. Joshua trees typically occur on flats, mesas, bajada, and gentle slopes (alluvial fans). Joshua trees are suggested to have a moderately high degree of flexibility to adapt to numerous environmental conditions and inhabit a variety of diverse areas that differ in elevation range (600-2200 meters), temperature, soil type, precipitation, and vegetation communities.

Based on multiple reports and analyses, there are two distinct species of Joshua trees: The western Joshua tree (*Yucca brevifolia*) and the eastern Joshua tree (*Yucca jaegeriana*), which are shorter in height and leaf length, have increased amount of branching, longer fruit, and occur primarily in the Eastern Mojave Desert. The United States Fish and Wildlife Services (USFWS) recognizes two populations of *Yucca brevifolia*, YUBR South and YUBR North. The YUBR South population is primarily located in the western Mojave Desert and has been observed as far south as Joshua Tree National Park, north towards Ridgecrest, and west to Gorman, CA, and encompasses major cities as such Palmdale, Lancaster, Victorville, Hesperia, and Yucca Valley. A warm desert ecoregion, the Mojave Desert consists of long, hot summers, mild winters, and little precipitation that includes isolated thunderstorms in the summer.

Joshua trees encounter multiple threats that challenge their resiliency which has led to an overall species decline. These threats include increasing temperatures, drought, invasive vegetation, wildfires, herbivory predation, and habitat loss.

2.0 Project Description

The Applicant is proposing to construct a park expansion consisting of multiple multipurpose fields, an equestrian center, aquatic center, skate park, dog park, event lawn & plaza, splash pad, community garden, tennis court, playground, restrooms, native garden, and detention basin. Parking spaces as per the County of San Bernardino requirements will also be provided. The project will connect to the existing water lines located on the existing Phelan Park area to the east along Sheep Creek Road.

The project is assumed to begin in the year 2024 and last approximately 12 months and would include construction of sidewalks, underground utilities (water, electric, gas), and street lighting. Project activities would include grubbing and grading the entire project site, trenching, digging, building and road construction, and other associated development activities. As required in all new construction projects, all grading and drainage activities will follow County of San Bernardino codes to ensure minimum disturbance to adjacent areas. Phelan Pinon Hills Community Services District will be responsible for building the development over the duration of construction.

The Protected Plant Preservation Plan provides information on the 162 western Joshua trees present on the site and the 28 trees suitable for use for on-site landscaping. A copy of the Protected Plant Preservation Plan will be submitted in a separate attachment to CDFW as part of the ITP application package. All relocation and transplanting will be conducted under the supervision of a licensed biologist or arborist and a licensed landscape architect. The relocated trees will be monitored weekly and monthly to ensure the trees are receiving the appropriate amounts of water and have not been disturbed.

2.1 Current Site Conditions

Current conditions on the property include a mix of moderately disturbed desert scrub community found within the eastern half of the site with moderate signs of human disturbances. The western half of the property contains a disturbed ruderal plant community that has grown since past grading. The biological resources on the site consist of a desert scrub community typical of the

area with fiddleneck (*Amsinckia tessallata*), Juniper (*Juniperus communus*), rubber rabbitbrush (*Ericameria nauseosa*), white-bursage (*Ambrosia dumosa*), flatspine bur ragweed (*Ambrosia acanthicarpa*), Joshua trees (*Yucca brevifolia*), kelch grass (*Schismus barbatus*), and cheatgrass (*Bromus tectorum*) observed on the site. The site is relatively flat and approximately 1,250 meters above sea level. RCA Associates, Inc. personnel conducted field investigations on June 24 and 28, 2021 during which each Joshua tree was evaluated. The Protected Plant Preservation Plan will be submitted to CDFW as part of the ITP application package.

2.2 Site Preparation, Site Cleanup, and Restoration

There are a total of 162 Joshua trees present on the site and (17.3%) of these trees are suitable for use for on-site landscaping as discussed below. The specific evaluation criteria used during the field investigation are discussed in Section 3.2. Once the relocation and disposition of the Joshua trees is approved by CDFW, site clearing activities will commence and development activities discussed in Section 2.0 will be initiated.

All construction equipment will be located on-site in a staging area where construction workers may also park their personal vehicles, construction vehicles, and any building materials that can be stored will also be located within the boundaries of the site. Construction vehicle access will occur along Sheep Creek Road and Warbler Road. All waste generated from construction activities will be placed in proper containers and will be properly disposed of as construction proceeds as per County of San Bernardino Ordinances.

2.3 Maintenance

Future maintenance performed on the property will consist of vegetation management within landscaped areas, replacement of landscaping plants when necessary, and replacement of utilities as needed. All maintenance activities will adhere to the requirements of the appropriate governing authorities and will be conducted in accordance with the applicable federal, State, and County regulations in order to prevent damaging any Joshua trees on adjacent properties.

3.0 TAKE OF COVERED SPECIES

3.1 Covered Species Requested for Take Authorization

The applicant is seeking authorization under Section 2081 (b) of the CESA for incidental take of the Joshua tree, hereafter referred to as the Covered Species (Table 1).

Table 1. Covered Species for the Project Under the California Endangered Species Act (CESA) 2081 Incidental Take Permit

Common Name	Scientific Name	CESA Status
Western Joshua Tree	<i>Yucca brevifolia</i>	Threatened, Candidate

3.2 Extent of Take and Impacts of the Proposed Taking of Covered Species

Clearing and grading activities and related construction activities on the parcel would result in direct and indirect impacts leading to the “Take” of Joshua trees. The area where the requested authorized take of the Covered Species is expected to occur includes the entire 19-acre site. Clearing and grading activities and construction activities that would result in the incidental take of the Covered Species include were previously discussed in Section 2.0 and would include:

- clearing, grubbing, grading, and removal of vegetation
- construction of commercial buildings and sidewalks
- installation of underground utilities including storm drain, water, electric, gas, and CATV

These activities will result in incidental take of individuals of the Covered Species in the form of either mortality (i.e., discarding 134 trees not suitable for transplanting) or relocation and utilizing 28 Joshua trees on-site as part of the landscaping plan. As noted above, the total number of Joshua trees located on the property (i.e., 162) are listed in Table 4-1 in the Protected Plant Preservation Plan and their locations are shown in Figure 3. The Joshua tree seedbank exhibit depicts a 186-foot radius circle around each tree. A separate exhibit showing the locations of Joshua trees on adjacent parcels within 300 feet of the property boundaries is also included. A comprehensive

analysis of the Joshua trees was conducted on June 24 and 28, 2021 during which each tree was evaluated for suitability for relocation and transplanting based on the following criteria:

3.2 Analysis Criteria for Suitability for Transplanting

1. Trees from about 1 foot in height up to approximately 12 feet,
2. No visible signs of damage to the tree such as absence of bark due to rodents,
3. 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 Joshua trees (i.e., clonal),
7. No exposed roots at the base of the tree,
8. Presence of branches with panicles.
9. Dead

Each tree's health was individually analyzed, based on the nine criteria numbered above, and then categorized into four conditions: Good, Fair, Poor, or Dead.

- Good – Trees with little to no damage, intact branches, no noticeable browning, or disease, no herbivory predation, and little to no absent bark. Transplantable if between 1 to 12 feet.
- Fair – Moderate amount of damage, such as noticeable absent bark, broken branches, some browning and disease, and some herbivory predation. Not Transplantable
- Poor – Heavy amount of damage, majority of leaves browning, minor amount of green foliage, deteriorating/almost dead. Not Transplantable.
- Dead – Not living, includes: dead Joshua trees that still have roots intact and are still standing, dead Joshua trees that have collapsed to the ground and detached from the root, and/or dead segments belonging to the trees (i.e., trunk, branch, roots, etc.). Not Transplantable.

3.3 Age Class and Phenophase of Joshua Trees

The life stage of each Joshua tree was also documented and recognized as either seedling, juvenile, and/or adult. Life stage information is provided in Table 4-1 in the Protected Plant Preservation Plan.

Seedling – Trees that are less than 25 centimeters (10 inches) in height. No visible trunk, only green leaves observed.

Juvenile - Young, unbranched, non-reproducing individual.

Adult – Reproducing, flowering, multi-branched individuals.

Joshua trees that reproduced asexually and produced clonal sprouts were noted under the column “Clonal” with whether the tree is clonal or not. If the tree was clonal, the number of sprouts produced within a three-meter radius (6 feet) of the main trunk (number of trunks also includes the main tree) were counted and logged. As noted above, there are 162 Joshua trees on the site and 28 Joshua trees appeared to be transplantable based on the above factors and will be utilized as part of on-site landscaping. The remaining trees were either clonal, had excessive branches, dead or too large to be successfully transplanted. Joshua trees that are greater than approximately 12-feet in height or have more than three branches have a very low success rate of survival due to their typically extensive roots systems which are normally significantly stressed during relocation efforts.

Joshua Tree

The Joshua trees on the site are located throughout the property and the trees will need to be removed or relocated to make the proposed project viable. This will result in direct impacts to the Covered Species. Indirect effects could include altered recruitment rates in the surrounding area and the introduction and spread of invasive or non-native species primarily during the construction phase. In addition, there could be a temporary reduction in photosynthetic potential in Joshua trees in immediate adjacent areas due to fugitive dust, and an increase in erosion which could affect the root systems of some Joshua trees that are near the property's boundaries. Potential impacts from invasive species, fugitive dust, and erosion will be minimized through implementation of the conservation measures described in Section 4.1.

One hundred and thirty-four of the western Joshua trees that occur within the boundaries of the site which are not suitable for transplanting will be removed and disposed off-site at a location to be specified by the County and with the approval of CDFW. These trees are listed in Table 4.1 in the Protected Plant Preservation Plan and were either clonal, very large, had multiple branches or are dead. The 28 trees which are suitable for relocation will be placed in boxes and temporarily stored on-site. The health of the trees will be monitored by the project biologist or arborist on a regular basis and will be watered as needed. Once construction of the park has been completed, the Joshua trees will be utilized for on-site landscaping (e.g., along internal roads, adjacent to parking areas, etc.) and will be planted in areas of the development where they will remain in perpetuity. Once the Joshua trees have been relocated the mitigation measures outlined in the following Mitigation and Monitoring Plan (see below). will be implemented and a final report will be prepared for submittal to CDFW.

3.2 Impacts to Regional Western Joshua Tree Populations and Potential to Jeopardize the Continued Existence of the Covered Species

The Project site is located within the *Y. brevifolia* south (YUBR South) population region which encompasses approximately 3,724,080 acres in California (Figure 5) (Rowlands 1978). Almost half of the YUBR South population range is located on Federal land (48%), with 1.86% belonging to the state, 0.03% to County/City Government, and 50.41% belongs in private lands. The total

number of Joshua trees in the South population is not known but is thought to be several million, with the greatest density of Joshua trees found in desert grasslands or shrub communities (Rowlands 1978). The YUBR south population region is the largest area of contiguous Joshua tree habitat (Figure 5) in California. Approximately 2.2 percent of the Western *Yucca brevifolia* range overlap with urban and metropolitan area, which includes Victorville, Hesperia, Palmdale, Lancaster, Ridgecrest, Yucca Valley, Apple Valley, and Antelope Valley. Urban development will result in loss of Joshua trees in these urban areas but the loss of trees due to development projects is not likely to have a significant impact on the current condition at a population or species level scale in the area supporting populations of the western Joshua tree. However, based on the USFWS modelling described below, overall impacts to the western Joshua trees populations may become significant over the next 30 to 70 years. The USFWS conducted two futures scenarios, using ICLUS modeling on western Joshua tree habitat based on 1.) a global approach to sustainable development that is more ecologically friendly until 2050 where it will begin to decline and 2.) forecasting greenhouse gas emissions will continuously increase throughout the 21st century. The effects of habitat loss by urbanization under scenario 1 will create approximately 21.7 percent potential decline of Joshua trees by the year 2095, as well as 14 percent reduction (705,536-acres) in suitable habitat. Scenario 2 forecasts a 41.6 percent decline of the Joshua tree population and 26 percent reduction (1,354,815-acres) in suitable habitat by 2095. Potential synergistic stressors created by habitat loss includes an increase in spread of invasive grasses and reduced fire intervals, and a persistent drought.

The project footprint covers the entire parcel and represents a small portion of the south population region for the western Joshua tree. As noted above, there are 162 Joshua trees on the site but only 28 trees are suitable for transplanting based on the results of the Joshua tree survey conducted in June of 2021. (See Protected Plant Preservation Plan provided in separate file.). Table 4-1 provides information on those trees present within the boundaries of the property and Figure 3 shows the location of the western Joshua trees present on the site.

Known Population Trends: Reliable estimates of the population size of western Joshua trees are unavailable due to the lack of range-wide population surveys and studies, and highly variable population density estimates among available studies (4 to 840 trees per acre; CBD 2019). The species is currently distributed across two regional population areas (YUBR North and YUBR

South) totaling approximately 5.7 million acres (Figure 5; USFWS 2018). There is no available data on range-wide population trends; however, recent evidence from portions of the species' range indicate the western Joshua tree may be in a state of population decline based on observations of limited recruitment (Harrower and Gilbert 2018), increasing mortality (DeFalco et. al. 2010, Harrower and Gilbert 2018), contraction of the species' range at lower elevations due to drought conditions (Harrower and Gilbert 2018). Studies conducted at Joshua Tree National Park also indicated a 93 percent decline in western Joshua tree abundance between 1990 and 2013 (Cornett 2014).

3.3 Impacts to the Yucca Moth (*Tegeticula synthetica*)

Joshua trees have an obligate plant-pollinator mutualism and are exclusively pollinated by the Yucca moth (*Tegeticula synthetica*). Female yucca moths use their sword-shaped ovipositor to cut into the ovary and extend beyond the yucca style before placing the eggs on the ovules. To ensure that the flower will develop, the yucca moth will pollinate the flower so it can produce seeds (food source) for the undeveloped larvae, then in late summer the larvae will fall to the ground and begin to pupate.

Fruit and seed production varies per year and is characterized as irregular and has been observed as being cyclic. Frequency of seed crop production and flowering may occur once or twice per decade, which may be an adaptation to avoid seed predation or resource accumulation. Optimal temperature and precipitation may have an influence on flowering and seed production, although further research will be necessary to determine the statement. Project induced impacts to the Yucca moth would include direct loss of the species during removal of those trees not suitable for transplanting as well as impacts to their night-time pollination activities due to on-site lighting. County Ordinance requires installation of lighting along the proposed internal access roads; however, where possible lighting will be directed downward and shield around the lights could be utilized to minimize light in the surrounding area.

Known Threats to the Species: Western Joshua tree survival and reproductive success can be impacted by multiple factors including, habitat loss, herbivory, climate change, and wildfire (USFWS 2018, CBD 2019). Habitat loss is occurring across the western Joshua tree range which

may constrain future range expansions (USFWS 2018). Urban expansion and associated development, expansion of military bases and training activities, and renewable energy developments throughout the southern California all contribute to the permanent loss of suitable habitat for the western Joshua tree (USFWS 2018). Given the species recent listing for candidacy for State listing, development projects throughout the region will be providing mitigation for the western Joshua tree through required funding. If CDFW determines listing is warranted and the western Joshua tree becomes a California state-listed threatened species, all future projects will be required to provide mitigation to offset the impacts of their project to the species.

Herbivory influences western Joshua trees by reducing seeding germination and establishment (Reynolds et al. 2012) and increasing juvenile tree mortality (Cornett 2017). Joshua tree seeds while inside the fruit, can be consumed or damaged by the yucca moth (*Tegeticula antithetical*) larvae (Keeley and Meyers 1985), and for those seeds that reach the ground about 99% are consumed or cached by rodents (Vander Wall et al. 2006, Waitman et al. 2012, Borchert and DeFalco 2016). Herbivory of young pre-reproductive western Joshua trees has been documented to occur by black-tailed jackrabbits (*Lepus californicus*), pocket gophers (*Thomomys sp.*), white-tailed antelope ground squirrels (*Ammospermophilus leucurus*), and woodrats (*Neotoma sp.*) (Esque et al. 2015). While herbivory ultimately reduces the number of mature western Joshua trees that could occur on the landscape, current information does not indicate herbivory has negatively affected population dynamics of the species as a whole, or of specific populations (USFWS 2018).

Changes in climate, including increasing temperatures, changing precipitation patterns, and increasing drought frequency and intensity, could threaten western Joshua trees by changing the local climate conditions which may negatively impact the Joshua tree range of tolerance. Increasing ambient temperatures has been negatively correlated with Joshua tree density (St. Clair and Hoines 2018) and western Joshua trees specifically are found in the hotter and dryer areas of the Mojave Desert (USFWS 2018). Increasing maximum summer or minimum winter temperatures may not be influencing the current condition of western Joshua trees on a population scale; however, it is unknown if the past temperature increases over the last decade has adversely impacted the western Joshua tree (USFWS 2018). In addition, it is unclear if changes in precipitation patterns have impacted western Joshua trees, but precipitation is important in

influencing seed germination (USFWS 2018). Droughts throughout the species range has been shown to reduce juvenile survival rate (DeFalco et. al. 2010). Increasing frequency of droughts may cause an increase in herbivory of pre-reproductive trees (Esque et al. 2015), and based on these various factors, climate change may adversely impact the population of western Joshua trees.

Western Joshua Tree Seedbank Information

Joshua tree seedling emergence occurs greatest after rainfall events coinciding with warm temperatures, typically in September and April, where soil moisture remains high, up to two weeks following >29mm of precipitation, in the top 5cm of soil (Reynolds et. al. 2012). Under moist soil conditions, seedling emergence occurs within seven days. Optimal night/day temperatures for seedling survival are between 15°C-25°C and 20°C -30°C (59°F-77°F and 68°F-86°F), with survival declining when below 10°C-20°C (50°F-68°F). Precipitation decreases in a southeast to northwest direction across the entire Joshua tree range, therefore resulting in fewer seedling recruitment in the far western Mojave Desert. Joshua trees established in the far west range may be vulnerable, due to current climate regime, to low seedling emergence. Although April and September show the highest rate of seedling emergence, September seedlings have the greatest chance of survival. Seedlings that emerge in April must compete for resources amongst other desert vegetation in the extreme heat temperatures and tend to be outcompeted due to lack of developed roots, unlike those that emerge September after the summer rains and the ideal temperatures that fall and winter bring.

It is also important to note that Joshua tree seedling emergence tends to enhance under nurse plants, most notably the creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), blackbrush (*Coleogyne ramosissima*), big sagebrush (*Artemisia tridentata*), range ratany (*Krameria parvifolia*), and spiny hopsage (*Grayia spinosa*) (Brittingham and Walker 2000). The dominant nurse plants in the YUBR South region are the creosote bush and white bursage (Mojave basin), at higher elevations are characterized by junipers and pinyons. Growing under shade canopy has many advantages that include: higher soil moisture, reduced insolation, reduced surface temperatures, reduced evapotranspiration demand, increased nutrients, reduced herbivory, and reduced wind desiccation. It is indicated that shading is more vital than water relations for long-term survival of desert seedlings. Shading creates a microhabitat temperature and moisture regime

that is optimal for photosynthesis and lead cell turgor and membrane function maintenance, lowers vapor concentration, improves water relations, carbon gain, reduced heat and cold damage to tissues, and avoids photo inhibition.

Other Potential Impacts to Western Joshua Tree: Wildfires rarely occur in the Mojave Desert (USFWS 2018); however, increasing drought conditions and the various invasive annual grasses that have spread throughout the Mojave Desert over the decades may provide extensive fuel for wildfires (USFWS 2018). Western Joshua trees are not considered well-adapted to fire (Abella 2010) but fire-damaged Joshua trees can re-sprout. However, successful re-sprouting requires sufficient precipitation for several years and may first require initial establishment of nurse plants in combination with animal dispersal (DeFalco et al. 2010, Vamstad and Rotenberry 2010, Abella et al. 2009). Wildfires may also adversely affect the seed bank and juvenile Joshua trees which are most susceptible to wildfires (Gucker 2006). The effects of wildfires on individual Joshua trees could lead to adverse impacts to the population of western Joshua trees (USFWS 2018).

Reasonably Foreseeable Impacts from Other Projects and Activities: Other residential and commercial projects have been proposed within the Community of Phelan, as well as surrounding communities in San Bernardino County (Victorville, Hesperia, Adelanto, and Apple Valley), and will be developed in the foreseeable future. However, the number of western Joshua trees that would be removed in association with other development projects is not known and cannot be estimated at the present time. However, impacts associated with these other projects are expected to be similar to the project covered by this ITP application. It is expected that other projects will also be subject to implementing minimization measures and providing compensatory mitigation to fully offset impacts to western Joshua trees associated with these other projects.

Jeopardy Conclusion:

The proposed project is located within one of the largest continuous blocks of western Joshua tree habitat. There are 162 Joshua trees within the site boundaries and 28 of these trees (See Table 4-1 in Protected Plant Preservation Plan) are suitable for transplanting and will be used for on-site landscaping. The remaining Joshua trees would need to be discarded. There are three Joshua trees in adjacent areas within 300-feet of the property boundaries which could be indirectly impacted.

The proposed development activities would result in the “Take” of Joshua trees either through relocation activities or when discarded. This “Take” will directly impact all 162 western Joshua trees. Maintenance of the transplanted trees will be implemented under the direction of the project biologist or a certified arborist and will continued as long as deemed necessary to ensure as many of the transplanted trees are successful in their new locations. As noted above, there are three Joshua trees in adjacent areas which may be indirectly impacted by construction activities. Although 162 western Joshua trees and their associated seedbanks will be directly affected by the project, the overall impacts of the project are expected to minimal when compared to the local, regional, and State population levels of the western Joshua tree. Therefore, the proposed project is not expected to jeopardize the continued existence of the western Joshua tree.

4.0 PROPOSED AVOIDANCE AND MINIMIZATION

4.1 General Wildlife and Plant Avoidance and Minimization Measures

Environmental Awareness Training Program: The Applicant will implement an Environmental Awareness Training program in order to educate the on-site workers regarding mitigation measures which will need to be implemented during ground clearing and construction activities. Prior to any ground disturbance activities, the Applicant shall submit proof to the County and CDFW that an environmental awareness and compliance training program was established and will be administered to on-site workers prior to the start of any ground disturbing activities. As part of the training program, the presenter will summarize the environmental regulations and applicable permit conditions which the workers will need to comply with. The training program shall include applicable measures established to avoid sensitive resources, including Joshua trees. Dated sign-in sheets for attendees will be held by the applicant for review by CDFW following completion of the Environmental Awareness Training Program.

Western Joshua Tree Avoidance and Minimization Measures

The Applicant will implement protection measures to address invasive species, fugitive dust, and erosion that may affect western Joshua trees that are retained on the site and those trees in the surrounding area. These measures will include:

- Invasive Species Control. Invasive species will be controlled in accordance with accepted practices and will include the regular trimming of weeds during the proposed development activities.
- Fugitive Dust Control. Dust suppression during ground disturbance activities will include frequent watering of the site during the construction phase.
- Erosion Control. Appropriate erosion and sedimentation control measures will be installed and maintained throughout the duration of the ground disturbance activities as required by the County.
- Joshua Tree Relocation. The 28 Joshua trees which are suitable for transplanting will be boxed until they can be utilized for on-site landscaping and planted in an area of the property approved by CDFW where they will remain in perpetuity. In the event some of the trees need to be relocated off-site, CDFW will be notified before any relocation activities occur. All relocation and transplanting activities will be conducted by a CDFW approved biologist or arborist, and a mitigation and monitoring plan is outlined below.

Wildlife Clearance Surveys and Biological Monitoring: The Applicant will implement wildlife pre-construction clearance surveys in accordance with CDFW requirements prior to the start of any ground disturbance activities. The surveys will be conducted by a qualified biologist, who shall be approved by the County and CDFW prior to the start of the surveys. Wildlife found on the site will be allowed to leave the site under their own power or relocated, where possible, to the nearest suitable habitat in the surrounding area. If any listed or special status wildlife species are found on the site during pre-construction surveys, an Authorized Permitted Biologist will relocate the species to suitable habitat outside the impact area, once CDFW has approved the proposed relocation activities. In addition, if any nesting birds are observed within the boundaries of the site, the appropriate buffers will be placed around the nest, where necessary.

If any listed species (e.g., desert tortoise, Mohave ground squirrel, etc.) are observed on the site during ground disturbance activities, the project biologist shall have the right to halt all activities

which may impact the species. Work shall proceed only after hazards to the State or federal listed species or other special-status species are removed by an Authorized Permitted Biologist and the species is no longer at risk. The project biologist and the Authorized Permitted Biologist will have copies of all of the compliance measures in their possession while work is being conducted on-site. During all on-site activities, project personnel will strictly adhere to the Environmental Awareness Training Program, BMPs, and additional impact and avoidance or minimization measures described in the permit issued for the project. Project personnel will respond to special-status species encounters as directed in the Environmental Awareness Training Program.

Grading Techniques and Modifications: Invasive species will be controlled, where necessary, to preserve the integrity of the natural vegetation community in the surrounding area in accordance with the BMPs.

4.2 Mitigation and Monitoring Plan

The purpose of this Joshua Tree Mitigation and Monitoring Plan for the subject project is to provide detailed specifications to protect, preserve, and mitigate impacts to the western Joshua trees which will be impacted as a result of the proposed project. As such, this Plan addresses the requirements of CDFW and provides details for the protection of trees that will be preserved on site, and to mitigate the impacts that will occur during the relocation of the western Joshua trees to an approved mitigation site. As noted above, there are 162 western Joshua trees on the site and 28 of the trees are suitable for transplanting. The non-transplantable trees (134) will be discarded with CDFW approval.

Joshua Tree Relocation Plan Criteria: Table 4-1 in the Protected Plant Preservation Plan identifies the location and number of each tree proposed to be transplanted, removed, or to remain in place. The following provided information on criteria which will be utilized during the relocation process.

- Contractor: A contractor with experience relocating Joshua trees, who will be salvaging/transplanting the trees and relocating them to the designated storage and/or relocation site, will be identified.

- Overnight/Monitoring: Tree relocation, stockpiling, maintenance, and watering will be monitored by a certified arborist or biologist.
- Tree size: Due to the low success rate of mature Joshua tree relocation, it is recommended that the Joshua trees which were found to be in fair to good health, less than 12 feet in height, and met the various other criteria used to evaluate the trees (See above) be transplanted.
- Timeframe: To increase the chances of a successful relocation, it is recommended that the trees be relocated from October through March. To increase Joshua tree survivability, the trees will not be dug-out and/or salvaged in warmer months (April through September). Trees will be replanted in the same season they were initially dug-out.
- Location: The Joshua trees suitable for transplanting will be utilized for on-site landscaping and final relocation planting locations on the mitigation site will be provided to CDFW.
- Transplant location soil conditions: The Joshua tree relocation receiver sites will have excellent drainage, since Joshua trees do not grow well in poorly drained sites, such as valleys. Acceptable soil types for relocation sites include silts, foams, and/or sands described as fine, loose, well-drained and/or gravelly. Prior to selection of the Joshua tree relocation receiver sites, it is recommended that a soil analysis report be provided to confirm appropriate soil conditions.
- Method of relocation: Joshua trees have fragile, shallow root systems that are easily damaged during the salvaging and relocation process. It is important during the excavation of the root ball, that as much of the existing root structure as possible be captured, so that an intact root ball is maintained during the salvaging process and relocation process. As such, the following is recommended to help increase the chances of successful salvage/relocation:
 - Trees will be salvaged and relocated by a contractor with experience successfully relocating Joshua trees.
 - Tree relocation is best completed through the use of machinery. A front-end loader or hydraulic tree spade is recommended. However, the hydraulic tree spade may be best used in instances where the soil type is sandy and silty. The goal of relocation is to maintain a high root-to-shoot ratio.

- Damaged and exposed roots will be cleaned up and dusted with sulfur or a fungicide to decrease the likelihood of root pathogens (Bainbridge 2007)
- Hand excavation may be recommended for site preparation, rocky/compacted soils, and/or relocation for smaller Joshua trees.
- Joshua trees will be pre-watered 24 hours prior to relocation.
- Equipment will be sterilized prior to digging up and transplanting each tree. Sterilization will reduce the likelihood of pathogens being passed from tree to tree.
- Planting direction: Proper orientation of the relocated trees is important to the success of the salvaged trees. Improper planting can result in sunburn and growth distortion. As such, the north side of each tree will be clearly marked/tagged prior to digging, and each tree will be replanted (or stored) in the same orientation as it was prior to removal.
- Post-transplant stabilization: Larger Joshua trees may require stabilization until the roots have had the opportunity to become re-established. To support larger trees, guy-wire staking may be necessary. Guy wires will be connected to the ground (i.e. preferably via a “dead-man” anchor below grade) and attached to the trunk or limbs with an expandable, non-abrasive connector. Multiple guy-wires may be required (i.e., recommended three equally spaced around the root ball for stability).
- Storage: Storage or stockpiling of the Joshua trees on-site prior to use for on-site landscaping is intended to allow for the storage of Joshua trees for replanting later on the project site or at an approved off-site location, if necessary.
- During storage all trees will be oriented in the same direction that they were prior to removal.
- Trees will be stabilized as necessary through the use of guy-wires, as previously described.

Watering and Irrigation:

- Stockpiled trees: Depending on ambient daytime temperatures, it is recommended that stockpiled trees be watered one to two times per week. Soil moisture levels will be routinely checked by the monitoring arborist or biologist to ensure appropriate soil moisture levels. Irrigation should be completed through either temporary irrigation systems or by hand watering. The soil should be allowed to dry out between irrigation cycles.
- Final planting locations: Trees that have been relocated to their final planting locations will be watered 1 to 2 times per week for an initial 2 to 3 months depending on the season and rainfall averages, tree size, and watering zone size. Irrigation will be adjusted seasonally, with a goal of removing the transplanted trees from supplemental irrigation after 2 years, and growth resumes.
 - Note: The total amount of water required for each tree will be dependent on the season and tree size. Irrigation needs may range from 2 to 20 gallons per watering cycle. The specific irrigation schedule and watering requirements for each tree will be determined by the arborist or biologist. Persistent wet soil can cause mildew and root rot. As such, soil moisture levels will be routinely checked at the time of watering, and the soil will be allowed to dry out between watering cycles. The watering zone for each tree (distance from the trunk) will be defined for each tree, based upon the tree height and root ball size.

*Post-relocation care: Post-relocation care will include the following:

Approval of and adherence to the irrigation schedule

Staking and guy-wiring inspection and removal

Monitoring schedule

- Monitoring and Reporting:

Monitoring: An arborist or biologist will be on site to oversee all phases of the Joshua trees transplantation, stockpiling, maintenance and watering, and replanting if necessary.

Reporting: Status reports will be prepared following all salvaging and replanting activities. For the initial 3 months, weekly monitoring by a certified arborist or

biologist is recommended to ensure that the watering needs of each relocated trees are being met. Following the initial 3-month monitoring period, it is recommended that the relocated trees be monitored on a monthly basis for 9 months. Following the first year of monitoring, it is recommended that the trees be monitored quarterly (every 3 months) for 3 years. Annual reports will be prepared at the end of each calendar year to document the status of the transplantation program and health/survivability of the relocated trees.

Long-term mitigation monitoring requirements: An annual inspection and report for 4 years is recommended. Reports of all monitoring will be submitted to the CDFW for review. Monitoring will track the location, health, and status of each transplanted Joshua tree. The monitoring arborist or biologist should include recommendations for maintenance and irrigation, should they be needed.

Transplanting Success Criteria:

The transplantation of the 28 western Joshua trees will be considered successful following four growing seasons – including two growing seasons with supplemental irrigation and two without – and the transplanted trees maintain a minimum of 80% survivability. Should the threshold drop below 80%, it is recommended that Joshua trees be obtained from a local nursery to meet the 4-year, 80% threshold. The achievement of the success criteria percentage or lack thereof, will be documented in each annual monitoring report. Remedial measures will be specified by the arborist or biologist if the success criteria are not being met.

Joshua Tree Protection Measures

The following measures are recommended to protect the Joshua trees in adjacent areas within 300-feet of the property boundaries so that they have protected zones around each tree near all active construction areas.

Fencing: Orange polyethylene construction fencing, no less than 4 feet in height, with tree protection signs, will be erected around any Joshua trees remaining in place within the site

boundaries. The protective fencing will be installed at the protected zone boundary of each tree, which is defined as 6 feet beyond the tree crown/canopy dripline. The intent of protective fencing is to prevent root damage and/or compaction of the soil by vehicles which may travel near the trees. Fencing will be secured to 6-foot-tall, heavy-gauge T bar line posts pounded in the ground a minimum of 18 inches and spaced a minimum of 8 feet on-center. Fencing will be attached to the T bar posts with minimum 14-gauge wire fastened to the top, middle, and bottom of each post. Tree protection signs will be attached to every fourth post. The contractor will maintain the fences to keep it upright, taut, and aligned at all times. Fencing will be removed only after all construction activities in the vicinity of the protected tree (s) are complete.

Pre-construction Meeting: A pre-construction meeting will be held between all contractors (including grading, tree removal/pruning, and builders) and a Certified Arborist or biologist. The meeting will focus on instructing the contractors on tree protection practices and answering any questions. All equipment operators and spotters, assistants, and those directing operators from the ground will provide written acknowledgement of receiving tree protection training. This training will include information on the location and marking of protected trees, the necessity of preventing damage, and the discussion of work practices that will accomplish these tasks.

Once construction activities have begun, the following protection measures will be followed:

Equipment Operation and Storage: Contractors will avoid heavy equipment operation around Joshua trees protected by fencing on site and in close proximity off site to limit disturbance. Operating heavy machinery around the rootzones of trees will increase soil compaction, which decreases soil aeration and subsequently reduces water penetration into the soil.

Materials Storage and Disposal: Contractors will not store or discard any supplies or materials, including paint, lumber, and concrete overflow near any on or off-site Joshua trees and will remove all foreign debris. In addition, the contractors will avoid draining or leakage of equipment fluids near any Joshua trees in adjacent areas. Fluids such as gasoline; diesel; oils; hydraulics, brake, and transmission fluids, paint, paint thinners and glycol (anti-freeze) will be disposed of properly. Contractors will ensure that equipment is parked at least 50 feet from any off-site Joshua trees to

avoid the possibility of leakage of equipment fluids into the soil. The effect of toxic equipment fluids on the trees could result in tree decline and mortality.

Grade changes: Contractors will ensure that grade changes, including adding fill, will not be permitted near any off-site Joshua trees without special written authorization and under supervision by a qualified arborist or biologist. Water trapped at the base of any of the Joshua trees could lead to root rot and other detrimental tree impacts.

Moving Construction Materials: Contractors will ensure that care be exercised when moving construction equipment and supplies near off-site Joshua trees, especially overhead. Contractors will ensure that damage to off-site Joshua trees will be avoided when transporting or moving construction materials.

Trenching: Except where specifically approved in writing beforehand, all trenching will not occur within close proximity that may cause unwarranted disturbance of any on or off-site Joshua trees. Where trenching is necessary near off-site trees that contain roots from retained trees, contractors will use trenching techniques that include the use of either a root pruner (Dosko root pruner or equivalent) or an Air-Spade to limit root impacts. Root damage caused by backhoes, earthmovers, dozers or graders is severe and may result in tree mortality. Use of root-pruning and Air-Spade equipment will be accompanied by and removal of soil from trench locations. The trench will be made no deeper than necessary to accommodate the intended materials.

Irrigation/Hand Watering: Irrigation/hand watering of the 28 stockpiled Joshua trees on site will seek to mimic natural rainfall patterns in Southern California. As such, irrigation/hand watering is not required unless recommended by the monitoring arborist or registered biologist.

Inspection/Reporting: An ISA qualified arborist or registered biologist will inspect the stockpiled trees adjacent to grading and construction activity on a monthly basis for the duration of the proposed project's construction period or until the Joshua trees have been transplanted to their final location. A site observation report summarizing site conditions, observations, tree health, and recommendations for minimizing tree damage will be submitted by the arborist or registered

biologist following each inspection. Annual monitoring reports will also be submitted to document year end conditions.

Maintenance after Construction: Following completion of the construction activity the tree protection fencing will be removed, and the following measures will be performed to sustain and enhance the vigor of the trees:

Watering: The Joshua trees which will be used for on-site landscaping should not require regular irrigation/hand watering unless specified by the arborist or biologist.

Monitoring: For the initial 3 months, weekly monitoring by a certified arborist or biologist is recommended to ensure that the watering needs of each Joshua tree which was relocated are being met. Following the initial 3-month monitoring period, it is recommended that the relocated trees be monitored on a monthly basis for 9 months. Following the first year of monitoring, it is recommended that the trees be monitored quarterly (every 3 months) for 3 years. Following each monitoring visit, a site observation report summarizing site conditions, observations, tree health, and recommendations for promoting tree health should be submitted. Any tree mortality will be noted, and any tree dying during the monitoring period will be replaced with the same species as specified by CDFW.

5.0 PROPOSED MITIGATION

Permanent protection and perpetual management of compensatory habitat is necessary and required pursuant to state and federal regulations to fully mitigate the “Taking” of the Covered Species that may result from development activities. The amount of compensatory mitigation is based on factors including an assessment of the quality of the habitat on the site, the extent to which on-site development activities will impact the Joshua tree and the potential for Joshua trees in adjacent areas to be impacted. The Proponent will coordinate with CDFW to estimate the compensatory cost required to provide adequate compensation for impacts to Joshua trees. The final total monetary mitigation fees will be determined through discussions with CDFW.

6.0 COMPLIANCE MONITORING AND REPORTING

A qualified biologist shall conduct pre-construction surveys as discussed in Section 4.1 and will implement the Environmental Awareness Training Program to all project personnel. A biological monitor will be present on the site, if required by CDFW, and shall have the authority to halt any construction activities. All Joshua tree relocation and removal activities will be conducted by an authorized biologist or arborist. Records of those trees relocated or removed will be documented and upon completion CDFW will be notified. If any Joshua trees in adjacent areas are destroyed or damaged during ground clearing or construction activities, the specifics of the impacts will be reported to CDFW within 24-hours. The Applicant will implement any and all mitigation measures, monitoring requirements, and reporting requirements deemed necessary by the County and CDFW in order to demonstrate compliance and effectiveness of the mitigation measures presented in this Incidental Take Permit application.

7.0 FUNDING ASSURANCES

The Applicant will ensure that adequate funding is available to implement the minimization and mitigation measures described in this ITP application, as well as funding for any monitoring compliance required. The project proponent will provide an ITP CESA fee of \$34,585.25 as required by CDFW and based on a project cost greater than \$500,000.

The Project Proponent will provide a statement declaring that Phelan Pinon Hills Community Services District has set aside funds and will be willing to provide the funds for all required mitigation, long-term management and all associates mitigation measures described in this ITP.

8.0 CEQA

Phelan Pinon Hills Community Services District's Initial Study is being provided in a separate file.

9.0 CERTIFICATION

I certify the information submitted in this application is complete and accurate to the best of my knowledge and belief. I understand any false statement herein may subject me to suspension or revocation of this permit and to civil and criminal penalties under the laws of the State of California.

Ryan Hunter

Date: October 2022

Work Performed By: Randall Arnold (Senior Biologist)
 Ryan Hunter (Environmental Scientist & Wildlife Biologist)
 Brian Bunyi, Wildlife Biologist

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APPENDIX A

Figures and Exhibits
(Submitted in separate file.)

APPENDIX B

**Protected Plant Preservation Plan
(Submitted in separate file.)**

APPENDIX C

**CEQA Initial Study
(Submitted in separate file.)**