JOSHUA TREE SURVEY REPORT
FOR THE
BURRTEC WASTE AND RECYCLING SERVICES
YUCCA VALLEY FACILITY

YUCCA VALLEY,
SAN BERNARDINO COUNTY,
CALIFORNIA

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EXECUTIVE SUMMARY

Hernandez Environmental Services (HES) was retained by Burrtec Waste and Recycling Services to perform a Joshua Tree Survey on a 36.7-acre property located in the town of Yucca Valley. Burrtec Waste and Recycling Services currently operates a truck terminal at an existing facility located at the northeast corner of Old Woman Springs Road and Buena Vista Road in the town of Yucca Valley. The proposed project would relocate the existing facility and all operations to the subject project site. Project development includes a truck terminal for Burrtec Waste and Recycling Services' collection fleet and an approximately 16,200 square foot solid waste transfer station. Additional improvements include landscape frontages on Indio Avenue and Sunnyslope Drive, a maintenance shop, a fueling station, an operations facility, in-ground truck scales, a stormwater detention basin, and associate parking.

On October 10, 2015, HES biologist Juan Hernandez conducted a field survey of the approximately 36.7-acre project site. The results of the survey are as follows:

- Number of Joshua trees surveyed: 108
- Total number of Joshua trees impacted by proposed construction: 106
- Number of proposed removals that may be transplanted: 42

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1.0 Introduction

Pursuant to the Town of Yucca Valley General Plan and Town Ordinance No. 140, the Plant Protection and Management Ordinance, Chapter 1, Desert Native Plant Protection, all species of mesquite (*Prosopis* spp.), yucca (*Yucca* spp.), palo verde (*Parkinsonia* [*i.e.*, *Cercidium*] spp.), and manzanita (*Arctostaphylos* spp.), as well as California juniper (*Juniperus californica*), desert willow (*Chilopsis linearis*), piñon pine (*Pinus monophylla*), creosote rings 10 feet or more in diameter, and all plants protected or regulated by the California Desert Native Plants Act (California Food and Agricultural Code 80001 *et. seq.*) shall not be removed except under a removal permit issued by the Community Development Director. A requirement of the removal permit is a plot plan indicating the protected plants to be removed or relocated.

Joshua trees (*Yucca brevifolia*) that are known to be at least 40 years old, which have a canopy width of at least 15 feet, which are at least 15 feet in height, or which have a trunk measuring at least 12 inches in diameter shall be preserved in place unless their removal, transplantation or destruction can be shown not to be feasibly avoided. In the event that it is found to be infeasible to maintain a Joshua tree in its original place, translocation on site or off site through the Town's Adoption Program is allowable, per the following requirements set forth in the Ordinance:

- The desert native plants are to be transplanted in a manner approved by the Community Development Director or other reviewing authority.

- The desert native plant is to be transplanted to another property within the same plant habitat under the supervision of a Desert Native Plant Expert and the removal of such plant will not adversely affect the desert environment on the subject site.

- Any desert native plant on the site which is determined by the Community Development Director or other reviewing authority as requiring transplanting will be transplanted or stockpiled for transplanting in accordance with methods approved by the Community Development Director. A Desert Native Plant Expert shall supervise and manage any required transplanting of desert native plants.

- In the Town's effort to retain and preserve, in place, existing Joshua trees and yuccas, the Planning Section of the Town of Yucca Valley shall establish and maintain a Joshua tree and Yucca Preservation and Adoption Program. This Program shall be a listing, available to the public, of locations where individuals have applied to disturb, move (transplant or

otherwise), remove or destroy existing Joshua trees. The Program shall include the name of the property owner, the address of the property containing the Joshua trees and yuccas, a mailing address for the property owner, a daytime contact phone number, the number of trees disturbed, moved, removed or destroyed, and the approximate size, physical characteristics and physical condition of the available trees, as of the date the trees was listed on the Program. The Program shall also list a date that each individual tree was disturbed, moved, removed or destroyed.

- No Joshua trees or yuccas shall be approved for transplantation more than once in any 10-year period. Although no Joshua trees may be approved for transplantation more than once in any 10-year period, the Planning Commission may, at the time of a discretionary review, approve an interim location, for up to 1 year for storing Joshua trees and yuccas to allow for a phased development of a project or property.

- The Program shall also include a list of the names, mailing addresses and daytime contact phone number of individuals who have expressed a desire to receive transplantable Joshua trees or yuccas, which will be reviewed and updated annually.

1.1 Purpose

As required by the Town of Yucca Valley and pursuant Ordinance No. 140, Chapter 1, Section 89.0125, the purpose of this Joshua tree report is to provide information to the Town on Joshua trees that may be removed, damaged, or encroached by the development of the Burrtec Waste and Recycling Services Yucca Valley Facility project. Encroachment is here defined as alteration that buries any portion of a native tree, significantly undercuts the root system, or otherwise disturbs the ground within the dripline of the native tree.

Hernandez Environmental Services (HES) was retained by Burrtec Waste and Recycling Services to perform a Joshua Tree Survey on a 36.7-acre property located in the town of Yucca Valley. Burrtec Waste and Recycling Services currently operates a truck terminal at an existing facility located at the northeast corner of Old Woman Springs Road and Buena Vista Road in the town of Yucca Valley. The proposed project would relocate the existing facility and all operations to the subject project site.

1.2 Project Location

The proposed project site is located in the town of Yucca Valley, near the southern boundary of the central portion of San Bernardino County (Figure 1, *Vicinity Map*). Yucca Valley is an

unincorporated town in San Bernardino County near the City of Twentynine Palms and the unincorporated communities of Morongo Valley and Joshua Tree. The project site is located near the eastern town boundary, on the southeastern corner of Indio Avenue and Sunnyslope Drive (Figure 2, *Location Map*). The approximately 36.7 acre project site consists of Assessor's Parcel Numbers (APNs) 0601-551-09, 0601-551-10, and 0601-551-11. Specifically, the project site is located within Section 32, Township 1 North, Range 6 East, San Bernardino Base Meridian (SBBM), on the Joshua Tree North, Joshua Tree South, Yucca Valley North, and Yucca Valley South, United States Geological Survey (USGS) 7.5-minute topographic quadrangles.

1.3 Project Description

The 36.7-acre project site consisted of a vacant site characterized by a mix of Joshua tree woodland, disturbed habitat, and crossed by an upland vegetated ephemeral stream which runs south to north across the southeastern portion of the site. The proposed project involves the development of an approximately 10.7-acre portion on the northwest corner of the 36.7-acre site. Project development includes a truck terminal for Burrtec Waste and Recycling Services' collection fleet and an approximately 16,200 square foot solid waste transfer station. Additional improvements include landscape frontages on Indio Avenue and Sunnyslope Drive, a maintenance shop, a fueling station, an operations facility, in-ground truck scales, a stormwater detention basin, and associate parking (Figure 3, *Project Plans*).

2.0 Methodology

HES conducted a survey and evaluation of on-site Joshua trees on October 10, 2015. The entire project site was traversed on foot. Joshua tree locations were mapped using a sub-meter Geographical Positioning System (GPS). Attribute data was also collected during this survey, and included tree height, fork height, trunk diameter, number of branches, canopy dimensions (N, E, S, and W), branch spread relative to 45°, deviation of the main trunk from vertical, and number of transplantable pups.

A determination of suitability for transplantation was determined for each Joshua tree based on the data collected in the field. A positive determination of suitability was made for a tree if it met all of the following criteria:

- the tree's height was 18 feet or less,
- the tree had fewer than 6 branches,

- the tree's canopy was less than 10 feet along the N/S and E/W axes,
- the angle of branching at the fork was equal to or less than 45°, and
- the tree was not leaning more than 45° from vertical.

These data are presented in Appendix A, *Joshua Tree Survey Data*.

3.0 Results

A total of 108 Joshua trees were surveyed. Table 1, *Impact Inventory*, details the onsite tree characteristics and proposed impacts. Onsite trees range from 4 to 26 feet in height; canopy width along the N/S or E/W axis ranged from 2 to 24 feet; and trunk diameter ranged from 4 to 54 inches. Forty-two of the surveyed trees within the proposed impact area were determined to be viable candidates for transplantation. Joshua tree locations relative to proposed construction on the project site are displayed on Figure 4, *Joshua Tree Location Map*.

Tree Waypoint	Latitude	Longitude	Height (feet)	Trunk Diameter (inches)	Number of Branches	N/S Canopy Width (feet)	E/W Canopy Width (feet)	Impact**	Transplantable
073	N 34°07'37.1"	W 116°22' 42.3"	19	4	6	15	11	R	No
074	N 34°07'37.6"	W 116°22'42.3"	13	37	3	9	7	R	No
075	N34 07 37.7	W116 22 42.5	16	42	5	11	9	R	Yes
076	N34 07 38.1	W116 22 42.3	14	41	3	8	12	R	No
077	N34 07 38.8	W116 22 42.3	8	24	2	3	2	R	No
078	N34 07 38.8	W116 22 42.3	10	36	1	5	7	R	No
079	N34 07 39.2	W116 22 42.3	5	24	-	5	2	R	No
080	N34 07 39.3	W116 22 42.0	19	43	6	16	16	R	Yes
081	N34 07 39.2	W116 22 42.0	14	36	2	6	4	R	No
082	N34 07 39.2	W116 22 41.9	16	32	8	9	10	R	No
083	N34 07 39.3	W116 22 41.7	13	30	8	8	9	R	No
084	N34 07 39.1	W116 22 41.6	15	36	5	7	6	R	No
085	N34 07 38.8	W116 22 41.8	7	36	-	4	7	R	Yes
086	N34 07 38.7	W116 22 41.8	10	40	2	4	3	R	No
087	N34 07 38.6	W116 22 41.9	16	36	6	12	14	R	No
088	N34 07 38.1	W116 22 42.3	8	29	2	3	4	R	Yes
089	N34 07 37.9	W116 22 41.8	9	32	3	5	5	R	No
090	N34 07 38.2	W116 22 41.7	11	36	3	5	6	R	Yes
091	N34 07 38.7	W116 22 41.5	14	29	4	8	6	R	Yes
092	N34 07 39.3	W116 22 41.3	17	38	4	15	13	R	No
093	N34 07 39.1	W116 22 41.3	15	28	4	6	7	R	Yes
094	N34 07 38.9	W116 22 41.3	10	20	3	7	5	R	Yes
095	N34 07 38.6	W116 22 40.9	16	39	5	12	8	R	No
096	N34 07 37.4	W116 22 40.8	10	29	3	5	4	R	Yes
097	N34 07 37.4	W116 22 41.3	10	32	2	4	5	R	No
098	N34 07 37.6	W116 22 40.3	19	29	2	9	10	R	No
099	N34 07 38.5	W116 22 40.4	16	29	6	10	10	R	No
100	N34 07 39.0	W116 22 40.1	6	29	2	3	3	R	No
101	N34 07 39.3	W116 22 39.8	14	32	3	5	4	R	Yes
102	N34 07 38.6	W116 22 40.1	9	24	2	3	3	R	Yes
103	N34 07 37.0	W116 22 39.2	13	38	3	9	9	R	No
104	N34 07 37.3	W116 22 39.3	12	32	2	6	4	R	No
105	N34 07 39.1	W116 22 38.6	5	27	2	3	2	R	Yes
106	N34 07 39.3	W116 22 38.3	13	24	2	6	6	R	No
107	N34 07 37.6	W116 22 38.4	15	26	4	6	5	R	No
108	N34 07 37.8	W116 22 39.3	8	24	-	2	2	R	No
109	N34 07 37.3	W116 22 38.4	11	29	2	6	5	R	Yes
110	N34 07 37.2	W116 22 38.3	12	22	4	5	7	R	Yes
111	N34 07 37.0	W116 22 38.4	9	21	-	2	2	R	Yes
112	N34 07 36.9	W116 22 38.7	11	31	2	3	7	R	No
113	N34 07 36.8	W116 22 38.3	12	29	4	8	8	R	Yes

Tree Waypoint	Latitude	Longitude	Height (feet)	Trunk Diameter (inches)	Number of Branches	N/S Canopy Width (feet)	E/W Canopy Width (feet)	Impact**	Transplantable
114	N34 07 37.1	W116 22 37.6	12	24	4	7	4	R	No
115	N34 07 37.5	W116 22 37.7	14	24	3	8	8	R	No
116	N34 07 39.1	W116 22 37.9	11	26	4	7	5	R	Yes
117	N34 07 39.3	W116 22 37.9	15	36	4	8	5	R	No
118	N34 07 37.5	W116 22 36.9	16	34	5	8	7	R	No
119	N34 07 37.6	W116 22 36.9	21	53	10	14	16	R	Yes
120	N34 07 37.9	W116 22 36.6	12	24	2	6	5	R	Yes
121	N34 07 37.3	W116 22 36.6	11	24	2	3	4	R	No
122	N34 07 37.9	W116 22 36.3	7	29	-	3	3	R	No
123	N34 07 37.5	W116 22 35.6	10	22	-	2	2	R	No
124	N34 07 39.1	W116 22 35.3	10	24	-	3	3	R	No
125	N34 07 38.9	W116 22 35.2	7	24	-	2	2	R	No
126	N34 07 37.8	W116 22 34.5	7	22	-	2	2	R	No
127	N34 07 38.1	W116 22 34.7	8	24	-	2	2	R	No
128	N34 07 35.7	W116 22 34.6	11	32	2	5	5	R	Yes
129	N34 07 35.5	W116 22 34.8	11	24	2	6	5	R	Yes
130	N34 07 34.6	W116 22 34.9	9	24	2	4	4	R	Yes
131	N34 07 34.1	W116 22 34.7	10	24	2	5	6	R	Yes
132	N34 07 33.5	W116 22 34.9	14	29	3	9	10	R	Yes
133	N34 07 35.3	W116 22 35.2	4	17	-	2	2	R	No
134	N34 07 35.9	W116 22 35.1	4	17	-	2	2	R	No
135	N34 07 36.3	W116 22 35.1	11	29	2	6	6	R	Yes
136	N34 07 36.3	W116 22 35.1	15	24	3	7	6	R	No
137	N34 07 35.9	W116 22 35.7	9	24	-	4	4	R	No
139	N34 07 36.7	W116 22 36.2	19	28	4	10	10	R	Yes
141	N34 07 34.0	W116 22 37.1	11	29	3	5	5	R	Yes
142	N34 07 33.1	W116 22 36.7	12	36	5	8	9	R	Yes
143	N34 07 33.8	W116 22 37.3	12	21	2	6	7	R	No
144	N34 07 34.0	W116 22 37.4	20	39	6	14	14	R	No
145	N34 07 34.8	W116 22 37.4	16	29	5	12	12	R	No
146	N34 07 35.5	W116 22 37.4	13	36	2	5	8	R	No
147	N34 07 35.9	W116 22 37.4	8	27	2	3	4	R	No
149	N34 07 35.2	W116 22 37.7	14	28	-	4	4	R	No
150	N34 07 35.4	W116 22 38.2	26	52	5	22	24	N	No
151	N34 07 35.0	W116 22 38.1	12	32	2	6	5	R	No
152	N34 07 34.5	W116 22 37.9	10	16	2	3	4	R	No
153	N34 07 34.1	W116 22 37.8	8	20	-	2	2	R	No
154	N34 07 33.1	W116 22 38.3	10	24	2	4	3	R	No

Tree Waypoint	Latitude	Longitude	Height (feet)	Trunk Diameter (inches)	Number of Branches	N/S Canopy Width (feet)	E/W Canopy Width (feet)	Impact**	Transplantable
155	N34 07 36.6	W116 22 39.2	15	24	2	6	8	R	No
156	N34 07 35.4	W116 22 39.5	4	17	-	2	2	R	Yes
157	N34 07 33.6	W116 22 39.1	12	31	3	3	3	R	No
158	N34 07 33.6	W116 22 39.1	5	17	-	2	2	R	Yes
159	N34 07 33.3	W116 22 39.3	11	29	2	6	4	R	No
160	N34 07 33.4	W116 22 40.0	6	17	-	2	2	R	No
161	N34 07 33.4	W116 22 40.1	16	36	6	11	12	R	Yes
162	N34 07 33.2	W116 22 40.2	11	32	3	6	5	R	No
163	N34 07 34.6	W116 22 40.2	11	27	2	6	4	R	Yes
164	N34 07 35.4	W116 22 40.3	12	26	2	6	4	R	No
165	N34 07 35.8	W116 22 40.5	11	29	3	6	5	R	Yes
166	N34 07 36.1	W116 22 40.7	11	30	4	6	4	R	No
167	N34 07 35.7	W116 22 40.6	16	32	2	4	7	R	Yes
168	N34 07 35.6	W116 22 40.8	13	32	2	7	6	R	Yes
169	N34 07 35.2	W116 22 40.5	12	36	3	8	9	R	Yes
170	N34 07 35.0	W116 22 40.6	15	29	2	7	8	R	Yes
171	N34 07 34.8	W116 22 40.4	12	29	4	6	5	R	No
172	N34 07 34.4	W116 22 40.6	14	31	3	10	8	R	Yes
173	N34 07 34.6	W116 22 40.8	16	26	2	6	8	R	Yes
174	N34 07 34.5	W116 22 41.0	12	27	4	5	9	R	No
175	N34 07 34.2	W116 22 40.7	16	36	5	8	11	R	Yes
176	N34 07 33.5	W116 22 41.5	15	31	2	7	7	R	Yes
177	N34 07 33.4	W116 22 41.6	12	27	3	8	8	R	No
178	N34 07 34.1	W116 22 41.5	21	54	3	18	18	R	Yes
179	N34 07 34.4	W116 22 41.6	4	14	-	6	6	R	No
180	N34 07 34.7	W116 22 41.9	4	14	-	14	14	R	No
181	N34 07 35.1	W116 22 42.3	4	14	-	14	14	R	No
182	N34 07 35.8	W116 22 41.4	4	14	-	14	14	R	No
183	N34 07 36.4	W116 22 42.3	7	16	-	16	16	N	No

**: Age estimate based on an assumption of 4 inches of growth through the first year, followed by 1 inch of growth per year thereafter.*

***: Impact abbreviations: R = removal; E = encroachment; N = no impact*

4.0 Recommendations

Based upon the findings of this report, it is recommended that the measures be implemented as part of the project to avoid, minimize, or compensate for the anticipated impacts from project activities:

1. Transplantation should be conducted during late fall or winter, when weather is moderately cool and soils are moist.

2. Joshua trees should be marked systematically so that they may be transplanted in the same orientation that they were growing in prior to removal. Prior to removal, all transplantable trees within the project impact area should be thus marked.

3. Prior to the initiation of Joshua tree salvage, the project biologist should coordinate a meeting with all contractors involved in the transplantation. The project biologist should provide the contractor(s) with a copy of the transplantation.

4. Trees that have been marked should be removed utilizing a tree spade or backhoe and personnel with shovels. Care should be taken to remove the entire root ball intact, to minimize exposure of the root ball to air, and to maintain a moist environment around the roots at all times. Root balls should be treated with a mixture of water and rooting hormone immediately upon removal from the ground, and the salvaged trees should be immediately transported to the storage area or transplantation site.

5. Unless immediately transplanted to their final locations, a storage area for the salvaged trees should be prepared ahead of time. The trees should be stored by planting in their native orientations within a temporary trench, or trenches, approximately one foot wider than the root ball of the trees and long enough to accommodate all the trees to be salvaged. Trees can be planted as close as possible while still allowing any necessary room for the installation of equipment. The project biologist should coordinate with the contractors to determine the length and width of the trench required.

6. Receiving holes for salvaged trees within the final transplantation area should be approximately one foot larger than the root balls they receive.

7. A water and rooting hormone (vitamin B-1) mix should be prepared prior to final translocation of trees. Added minerals or chelating agents, common additives in commercially available rooting hormone mixes, are acceptable. The rooting hormone should be mixed per the manufacturer's direction. The receiving hole should be filled with a mixture of water and rooting hormone, and allowed to drain before placing the tree in the hole. Once the plant is set in the hole in the proper orientation, the hole should be backfilled and the tree watered once again. Air pockets should be eliminated from

around the root ball by tamping or standing on the root ball while the soil around the plant is still wet. A basin should be left around the plant to hold water. The trees should be watered again after 10 days by soaking with a mixture of Vitamin B1 and water.

8. The trees should be watered periodically through the establishment period based upon their appearance. The project biologist (or designee) should monitor the plants for signs of stress and desiccation and notify maintenance personnel when the plants must be watered. For each watering, the basin should be filled and then allowed to drain (and the soil to dry) before watering again. Watering should be conducted as needed to support the initial translocation; however, the goal is to establish the plants without need for supplemental watering. The transplants should be monitored weekly for three months and then monthly until the project biologist has determined that they are established.

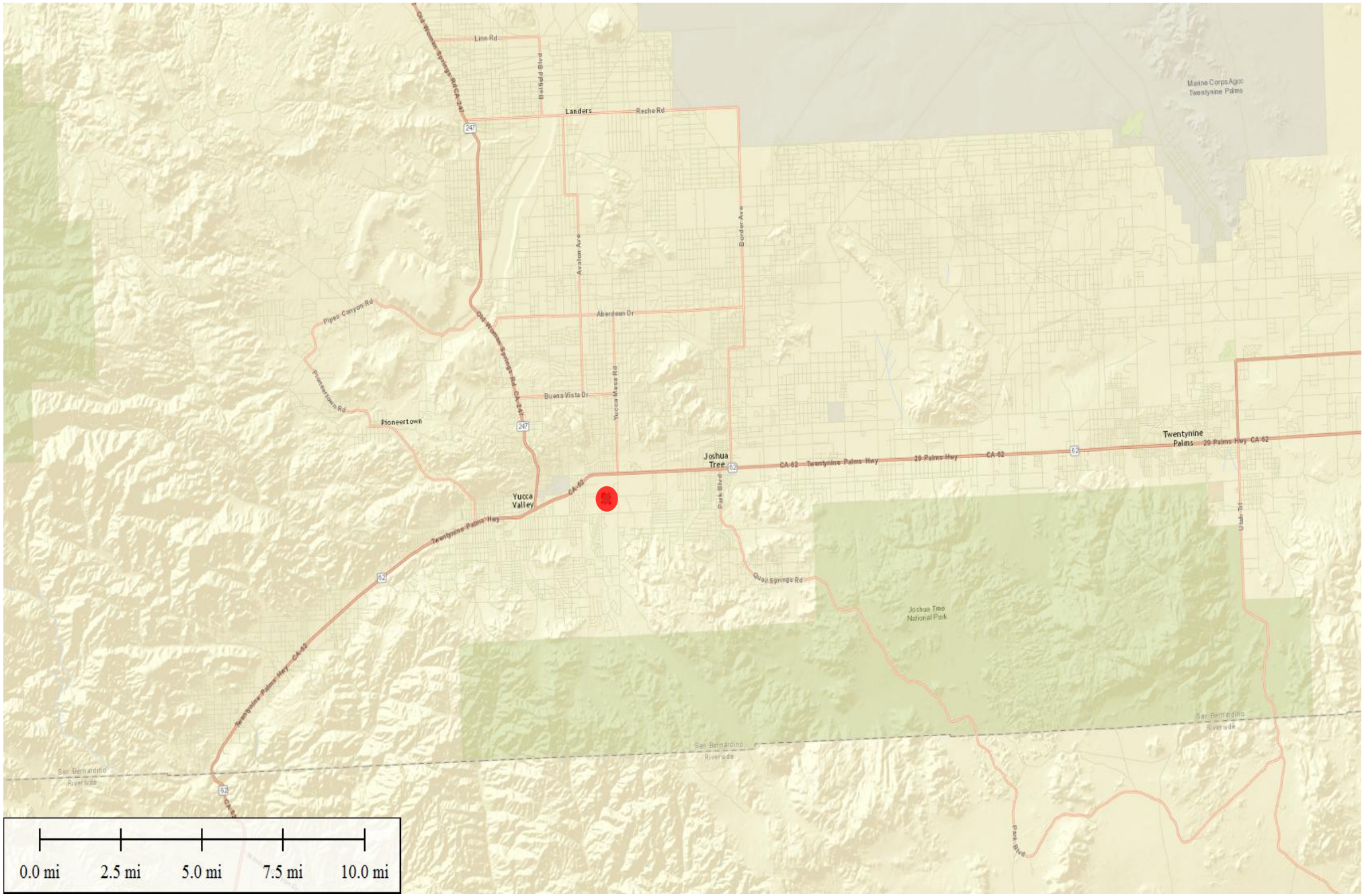

Figure 1
Vicinity Map
Joshua Tree Survey
Burrtec Yucca Valley Facility
Yucca Valley, San Bernardino County, CA

Legend

Project Location

N

Hernandez Environmental Services

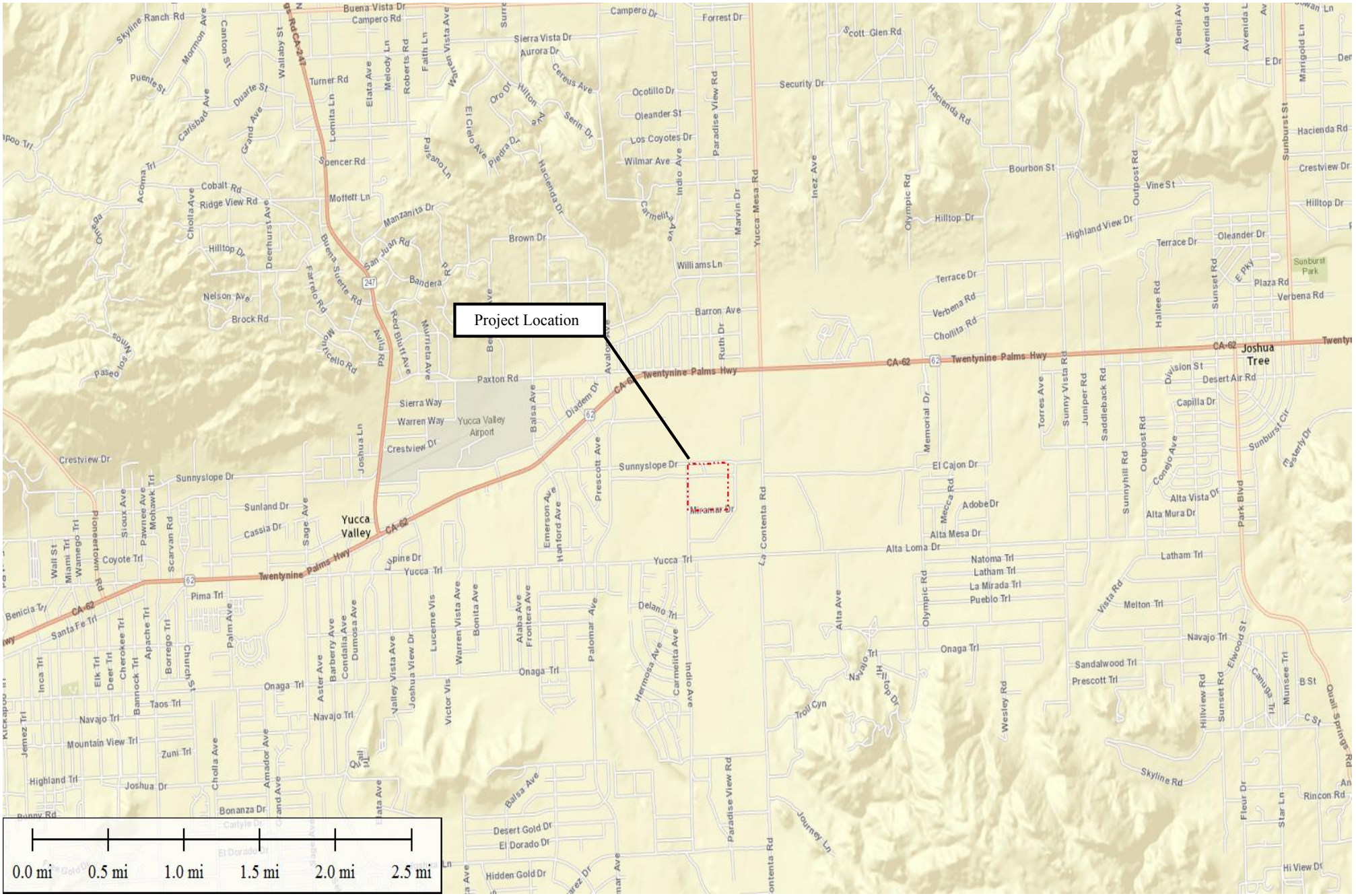

Figure 2
Location Map
Joshua Tree Survey
Burrtec Yucca Valley Facility
Yucca Valley, San Bernardino County, CA

Legend

Project Location

N

Hernandez Environmental Services

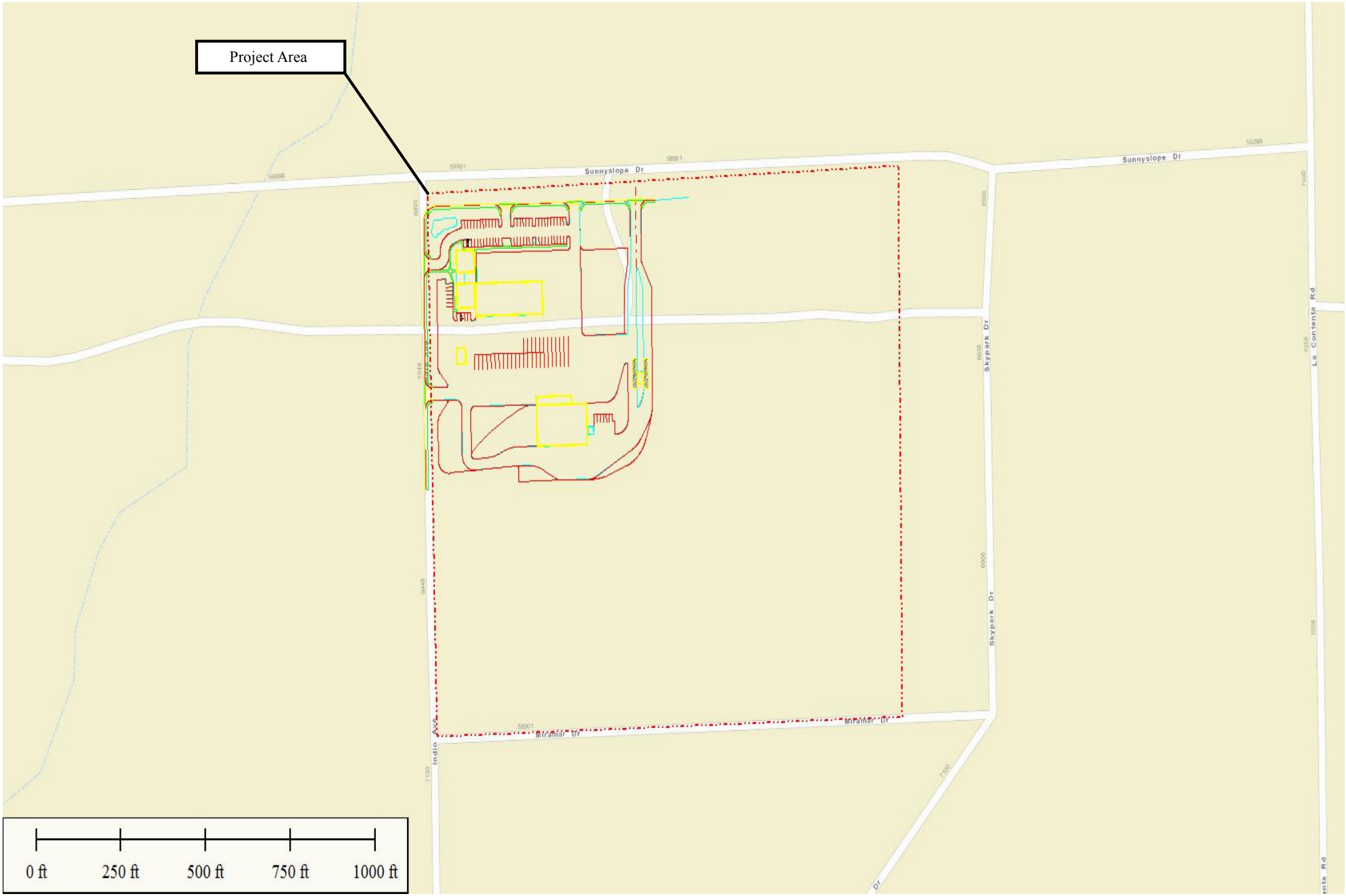

Figure 3
Project Plans
Joshua Tree Survey
Burrtec Yucca Valley Facility
Yucca Valley, San Bernardino County, CA

Legend

Property Boundary

N

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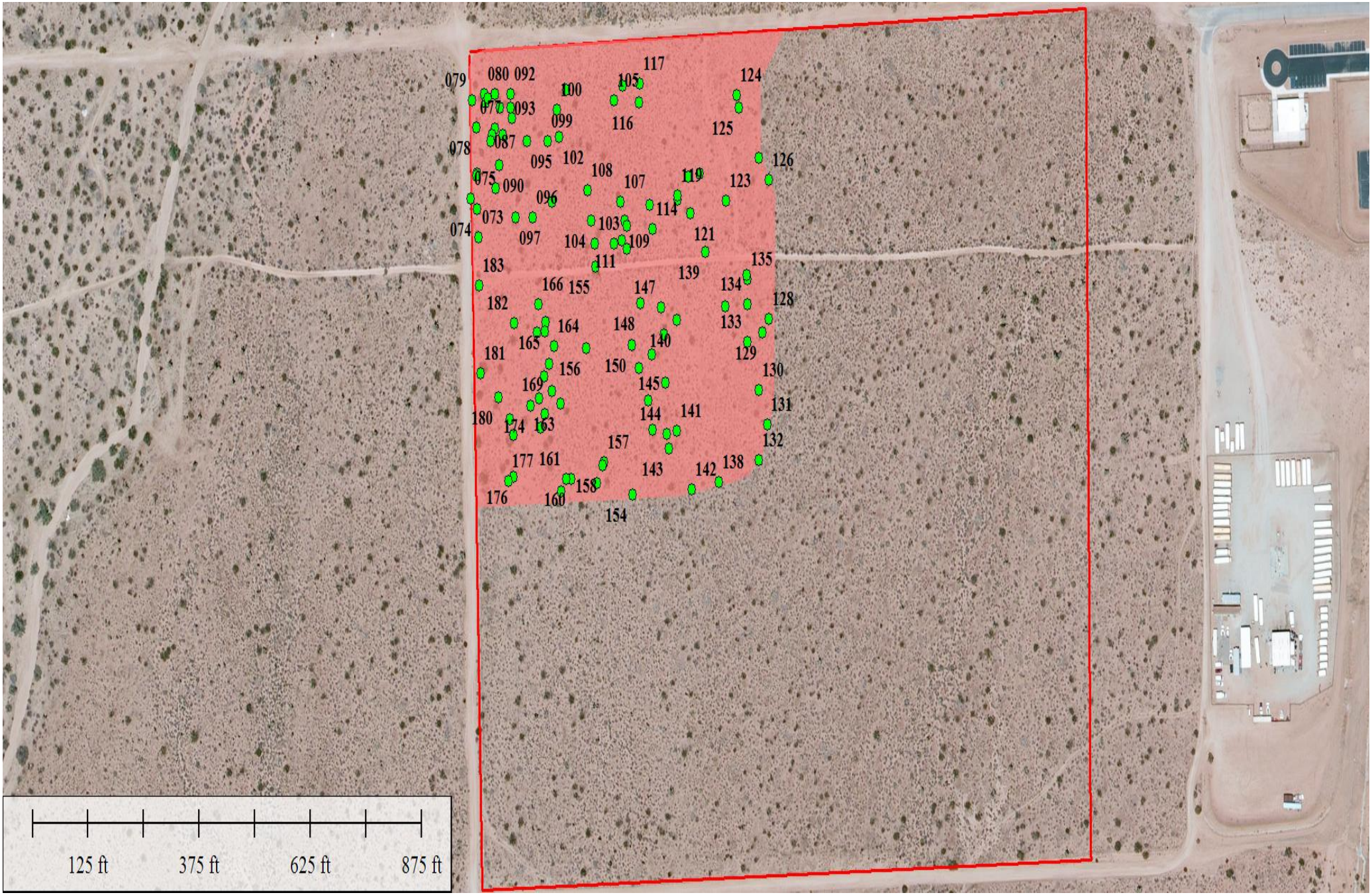

Figure 4

Joshua Tree Location Map
Joshua Tree Survey
Burrtec Yucca Valley Facility
Yucca Valley, San Bernardino County, CA

Legend

- 36.7 Acre Property Boundary
- Survey Area
- Joshua Trees

N

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