

# Topock Project Executive Abstract

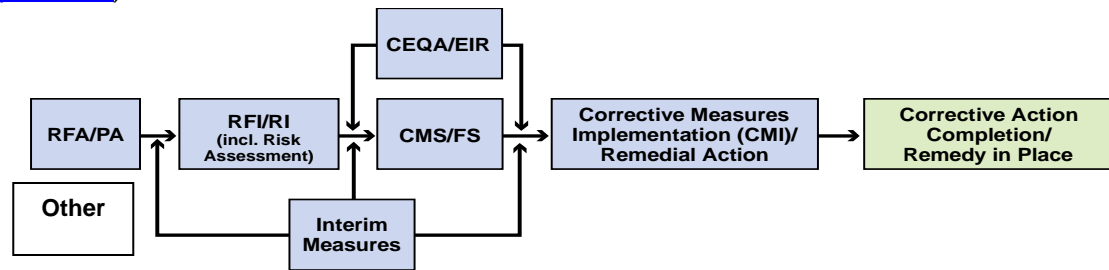
<p>Document Title:</p> <p><i>Addendum to Topock Compressor Station Groundwater Remediation Project Mature Plants Survey Report</i></p> <p>Submitting Agency: DTSC, RWQCB</p> <p>Final Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Date of Document: May 19, 2014</p> <p>Who Created this Document?: (i.e. PG&amp;E, DTSC, DOI, Other) – PG&amp;E</p>
<p>Priority Status: <input type="checkbox"/> <b>HIGH</b> <input type="checkbox"/> <b>MED</b> <input checked="" type="checkbox"/> <b>LOW</b></p> <p>Is this time critical? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Action Required:</p> <p><input checked="" type="checkbox"/> Information Only <input type="checkbox"/> Review &amp; Comment</p> <p>Return to: _____</p> <p>By Date: _____</p> <p><input type="checkbox"/> Other / Explain:</p>
<p>Type of Document:</p> <p><input type="checkbox"/> Draft <input checked="" type="checkbox"/> Report <input type="checkbox"/> Letter <input type="checkbox"/> Memo</p> <p><input type="checkbox"/> Other / Explain:</p>	<p>What does this information pertain to?</p> <p><input type="checkbox"/> Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)</p> <p><input type="checkbox"/> RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)</p> <p><input type="checkbox"/> Corrective Measures Study (CMS)/Feasibility Study (FS)</p> <p><input type="checkbox"/> Corrective Measures Implementation (CMI)/Remedial Action</p> <p><input checked="" type="checkbox"/> California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)</p> <p><input type="checkbox"/> Interim Measures</p> <p><input type="checkbox"/> Other / Explain:</p>
<p>What is the consequence of NOT doing this item? What is the consequence of DOING this item?</p> <p>This report addendum complies with the EIR mitigation measures AES-1a and AES-2b. If this work was not performed, it would constitute a non-compliance with the EIR mitigation measure.</p>	<p>Is this a Regulatory Requirement?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, why is the document needed?</p>
<p>Other Justification/s:</p> <p><input type="checkbox"/> Permit <input type="checkbox"/> Other / Explain:</p>	
<p>Brief Summary of attached document:</p> <p>The Final Environmental Impact Report (EIR) for the Topock Compressor Station Groundwater Remediation Project prescribes mitigation measures to reduce the environmental impacts associated with the groundwater cleanup. Mitigation measures AES-1a and AES-2b require a survey of mature plant vegetation in Project areas visible from Key View 5, Topock Maze Locus B, and Key View 11, the Colorado River. The surveys will be used to design the Project in a manner that minimizes the Project's aesthetic impacts on these Key Views. At the kickoff for the August 2011 survey, Tribes requested and PG&amp;E agreed to survey Mature Plants across the entire EIR Project Area. The Mature Plants Survey was performed in August 2011 with a field check in November 2011. A report was submitted in January 2012.</p> <p>This addendum presents the results of subsequent July 2012 and April 2014 surveys for 56 acres added to the EIR Project Area during remedy design following the initial report submittal. This addendum presents updated detailed maps of Mature Plant occurrence, a list of Mature Plant species mapped in the EIR Project Area, and representative photographs. The data presented with this report will be considered in the remedy design.</p> <p>Written by: PG&amp;E</p>	
<p>Recommendations:</p> <p>This report is for your information only.</p>	
<p>How is this information related to the Final Remedy or Regulatory Requirements:</p> <p>This report presents data collected for use with the remedy design. The 2012 Mature Plants Survey Report and this 2014 Addendum complied with EIR mitigation measures AES-1a and AES-2b.</p>	

Other requirements of this information?

None.

Related Reports and Documents:

Click any boxes in the Regulatory Road Map (below) to be linked to the Documents Library on the DTSC Topock Web Site ([www.dtsc-topock.com](http://www.dtsc-topock.com)).



**Legend**

RFA/PA – RCRA Facility Assessment/Preliminary Assessment

RFI/RI – RCRA Facility Investigation/CERCLA Remedial Investigation (including Risk Assessment)

CMS/FS – RCRA Corrective Measure Study/CERCLA Feasibility Study

CEQA/EIR – California Environmental Quality Act/Environmental Impact Report

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May 19, 2014

Mr. Aaron Yue  
Project Manager  
California Department of Toxic Substances Control  
5796 Corporate Avenue  
Cypress, CA 90630

**Subject:** *Addendum to Mature Plant Survey Report for the PG&E Topock Compressor Station*

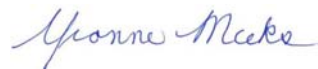
Dear Mr. Yue:

Enclosed is the Technical Memorandum *Addendum to the Topock Compressor Station Groundwater Remediation Project Mature Plants Survey Report*. This Technical Memorandum presents data that was collected from surveys conducted in July 2012 and April 2014, pursuant to the EIR mitigation measures AES-1a and AES-2b. These surveys mapped mature plants in 56 acres of land added to the original EIR project area after submittal of the January 2012 *Mature Plants Survey Report* based on 2011 survey data.

This Technical Memorandum is a supplement to the January 2012 *Topock Compressor Station Groundwater Remediation Project Mature Plants Survey Report*. This information will be used in the groundwater remedy design and inform the risk assessment.

Please contact me at (805) 234-2257 or Virginia Strohl at (559) 263-7417 if you have any questions about this.

Sincerely,



Yvonne Meeks  
Topock Project Manager

Enclosure

*Supplemental Ethnobotanical Plant Surveys Technical Memorandum*

cc: Karen Baker/DTSC  
Pam Innis/DOI  
Carrie Marr/FWS  
Victoria Chau/ CDFW

# Addendum to the January 2012 Mature Plant Report for the Topock Compressor Station Final Groundwater Remedy

PREPARED FOR: Pacific Gas and Electric Company  
 PREPARED BY: Russell Huddleston/E2 Consulting Engineers  
 DATE: May 19, 2014

## Introduction

This is an addendum to the Topock Compressor Station Groundwater Remediation Project Mature Plants Survey Report, completed in January 2012. This addendum provides updated information that includes the additional 56 acres that were added to the original EIR project area after the surveys for the January 2012 Report had been completed. The additional areas were comprised of the primary and secondary locations (HNWR-1 and Site B wells) for the proposed freshwater supply for the Final Groundwater Remedy along the Oatman -Topock Highway (Figure 1). This report specifically documents the mature plants that were identified in the additional area and provides a complete, updated set of maps showing the locations of mature plants throughout the project area (Attachment A).

For the purpose of the survey, mature plants were defined as living trees, large or prominent shrubs, and tall predominantly herbaceous plants that were considered important to the aesthetic value of the Project Area (GANDA and CH2M HILL 2012). Seedlings, small saplings and other immature plants were not mapped due to their small stature. A total of twenty-one species were considered appropriate to categorize and map as Mature Plants (Table 1). More than half of these (N=13) are trees, with the remainder split between shrubs (N= 5) and herbaceous perennials (N= 4; Table 1).

TABLE 1  
List of Plant Species Considered to be Mature Plants

Common Name	Scientific Name	Plant Habit	Sections in which Species Occurs
<b>TREES</b>			
Athel tamarisk	<i>Tamarix aphylla</i>	Tall to very tall tree	A, B, D, F, G, L
Blue palo verde	<i>Parkinsonia florida</i>	Shrub to tree	A, C, D, E, F, G, H, I, J, L
Catclaw acacia	<i>Senegalia greggii</i> ( <i>Acacia greggii</i> )	Shrub to small tree	A, B, C, D, E, G, H, I
Desert smoke tree	<i>Psoralea argophylla</i>	Medium to tall tree	A, B, C, D, J
Eucalyptus	<i>Eucalyptus</i> sp.	Tall tree	A, B
Fremont's cottonwood	<i>Populus fremontii</i>	Tall tree	B
Goodding's willow	<i>Salix gooddingii</i>	Medium to tall tree	B
Hillside palo verde	<i>Parkinsonia microphylla</i>	Shrub to tree	H, I

TABLE 1  
List of Plant Species Considered to be Mature Plants

Common Name	Scientific Name	Plant Habit	Sections in which Species Occurs
Honey mesquite	<i>Prosopis glandulosa</i> var. <i>torreyana</i>	Medium to tall tree	A, B, C, D, E, G, H, I, J
Mexican fan palm	<i>Washingtonia robusta</i>	Medium to tall tree	A, B, E, H, J
Narrow-leaved willow	<i>Salix exigua</i>	Medium tree	A, E, F, G, I
Salt cedar	<i>Tamarix ramosissima</i>	Shrub to large tree	A, B, C, D, E, F, G, H, I, J, L
Screwbean mesquite	<i>Prosopis pubescens</i>	Medium to tall tree	A, E, F, I
<b>SHRUBS</b>			
Arrow weed	<i>Pluchea sericea</i>	Medium to tall shrub	A, B, C, D, E, F, G, H, I, J
Creosote bush	<i>Larrea tridentata</i>	Shrub	A, B, C, D, E, F, G, H, I, J, L
Ocotillo	<i>Fouquieria splendens</i>	Tall shrub	C, D, I
Oleander	<i>Nerium oleander</i>	Medium to tall shrub	A, B, H
Big saltbush	<i>Atriplex lentiformis</i>	Shrub	A, G, J
<b>HERBS</b>			
Broad-leaved cattail	<i>Typha latifolia</i>	Tall herb	A, B, C, E, I, J
California bulrush	<i>Schoenoplectus californicus</i>	Tall sedge	A, B, E, F, G, I, J
Common reed	<i>Phragmites australis</i>	Tall perennial grass	A, E, F, G, I, J
Giant reed	<i>Arundo donax</i>	Tall perennial grass	A, E, F, G, I

## Methods

The survey methods for the additional area followed the same protocols developed expressly for Mitigation Measures AES-1a and AES-2b (upon which, the Mature Plants Survey Report was based) as well as stakeholder comments. The methodology was developed to ensure that all mature plants in the project area were identified and recorded. Surveys of the additional area were completed on July 16 and 17, 2012 by biologists Russell Huddleston and Melissa Williams and on April 7 through 10, 2014 by biologists Russell Huddleston and Steve Long. Mature plants were mapped using a combination of high-resolution aerial photographs and Global Positioning System (GPS). Field data was collected using Trimble GeoXH and GeoXT GPS units. In areas where individual plants were numerous and closely clustered together, GPS data was collected along the perimeter of the clusters forming a polygon.

For each Mature Plant or cluster of Mature Plants, surveyors recorded the height and health of the plant. Four height categories were used as follows:

- short (< 6 feet),
- medium ( $\geq 6$  and < 12 feet),
- tall ( $\geq 12$  and < 20 feet), or
- very tall ( $\geq 20$  feet).

The results of the field mapping for the entire project area is presented in Attachment A of this memorandum.

Plant health was also assessed using three categories as follows:

- good (plants with no dead or damaged branches or other signs of branch senescence),
- fair (plants with a few dead or senescent branches), or
- poor (plants with more than half of the branches dead or damaged).

## Results

The area on the west side of the Oatman-Topock highway was previously dense athel tamarisk and salt cedar that was burned during a wildfire in October of 2008. In early 2011, the Havasu National Wildlife Refuge (Refuge) initiated restoration activities in the burn area that included the removal of logs and woody debris and irrigation to leach salts from the soils. Applying a two-phase approach, the Refuge has planted native vegetation in 22-acres of the burned area, a portion of which, is included in the additional survey area. Native vegetation that had been planted in this area includes screwbean mesquite, blue paloverde, desert broom, four wing saltbush (*Atriplex canescens*), needle grama (*Bouteloua aristidoides*), alkali sacaton (*Sporobolus airoides*), James' galleta (*Pleuraphis jamesii*), and desert globe mallow (*Sphaeralcea ambigua*). Trees and shrubs in this area were all short to medium and were generally in fair to good condition, although some of the planted trees were in poor condition.

With the exception of the re-vegetation plantings most of the 2008 burn area is barren with only a few scattered athel tamarisk (*Tamarix aphylla*) seedlings and occasional weedy herbaceous plants such as tansy mustard (*Descurainia sophia*) and Russian thistle (*Salsola tragus*). The burn areas had all been mechanically cleared and scarified and wood chips and logs and woody debris piles are still present in a few locations (see photographs in Attachment B).

In the former burn area, mature vegetation is found at two locations: the medium-sized quailbush (*Atriplex lentiformis*) in the southern portion of the added survey area; and two patches of tall blue palo-verde trees on the earthen berms along the Sacramento Wash in the northern part of the additional survey area (see photographs in Attachment B). Vegetation at both of these locations appears to be in generally good condition. The area on the east side of the highway includes the outer edges of a dense stand of tall athel tamarisk with some salt cedar along the edge of the roadway (see photos in Attachment B). Trees in this area were unaffected by the 2008 Sacramento Wash fire and appeared to be in good condition.

## Reference Cited
























GANDA and CH2M HILL, 2012. Mature Plants Survey Report. January 16.

**Attachment A**  
**Mature Plant Mapping in the Topock**  
**Project Area**

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MATURE PLANTS LEGEND

TREES		
Common Name	Species	Plant Habit
 Athel Tamarisk (2)	<i>Tamarix aphylla</i>	Tall to very tall tree
 Blue Palo Verde (3)	<i>Parkinsonia florida</i>	Shrub to tree
 Catclaw Acacia (9)	<i>Senegalia greggii (Acacia greggii)</i>	Shrub to small tree
 Desert Smoke Tree (12)	<i>Psorothamnus spinosus</i>	Medium to tall tree
 Hillside Palo Verde (13)	<i>Parkinsonia microphylla</i>	Medium to tall tree
 Honey Mesquite (15)	<i>Prosopis glandulosa var. torreyana</i>	Medium to tall tree
 Mexican Fan Palm (8)	<i>Washingtonia robusta</i>	Medium to tall tree
 Narrow-leaved Willow (18)	<i>Salix exigua</i>	Shrub or small tree
 Salt Cedar (19)	<i>Tamarix ramosissima</i>	Shrub to large tree
 Screwbean Mesquite (26)	<i>Prosopis pubescens</i>	Medium to tall tree
 Fremont's Cottonwood	<i>Populus fremontii</i>	Tall tree
 Goodding's Willow	<i>Salix gooddingii</i>	Shrub to small tree
 Eucalyptus	<i>Eucalyptus sp.</i>	Tall tree
SHRUBS		
Common Name	Species	Plant Habit
 Arrow Weed (1)	<i>Pluchea sericea</i>	Medium to tall shrub
 Quailbush Scrub (28)	<i>Atriplex lentiformis</i>	Medium to tall shrub
 Creosote Bush Scrub (11)	<i>Larrea tridentata</i>	Shrub
 Oleander (17)	<i>Nerium oleander</i>	Medium to tall shrub
 Bush Seepweed Scrub	<i>Suaeda moquinii</i>	Shrub
 Ocotillo	<i>Fouquieria splendens</i>	Tall shrub
HERBS		
Common Name	Species	Plant Habit
 Broad-leaved Cattail (6)	<i>Typha latifolia</i>	Tall herb
 California Bulrush (7)	<i>Schoenoplectus californicus</i>	Tall sedge
 Common Reed (10)	<i>Phragmites australis</i>	Tall perennial grass
 Giant Reed (15)	<i>Arundo donax</i>	Tall perennial grass

MULTI-SPECIES AREAS  
Common Name

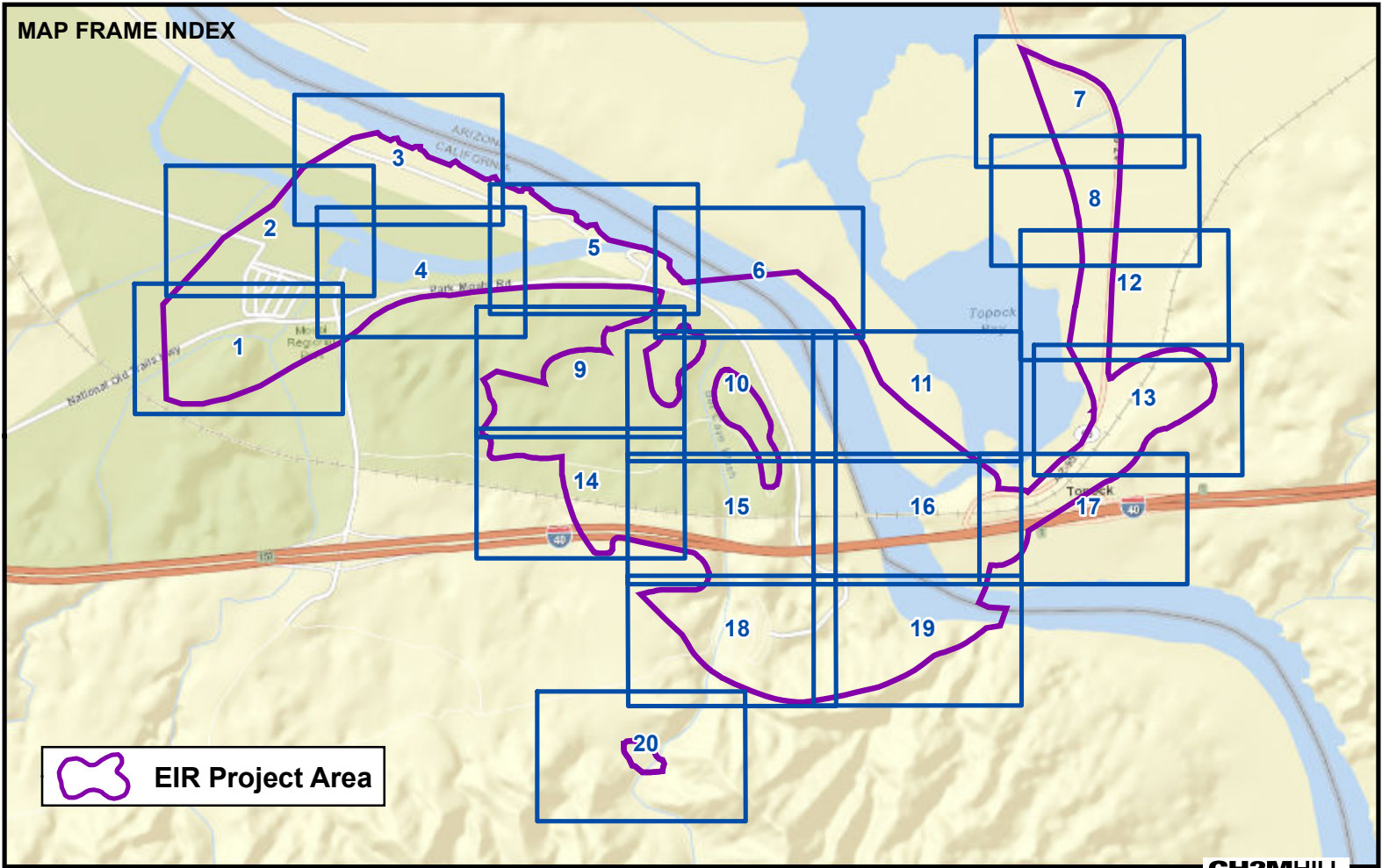
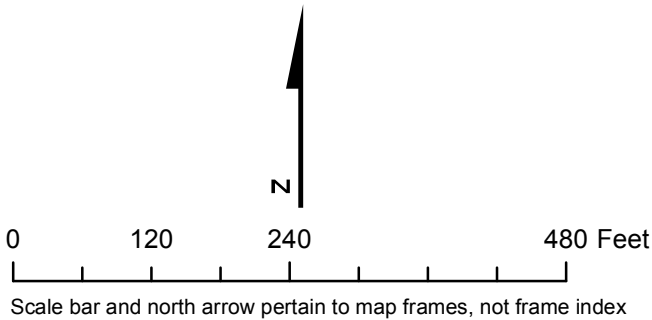
	Blue Palo Verde/Catclaw Acacia (4)
	Blue Palo Verde/Honey Mesquite (22)
	Blue Palo Verde/Salt Cedar/Honey Mesquite (5)
	Salt Cedar/Arrow Weed (25)
	Salt Cedar/Athel Tamarisk (29)
	Salt Cedar/Honey Mesquite (24)
	Salt Cedar/Screwbean Mesquite (23)

OTHER

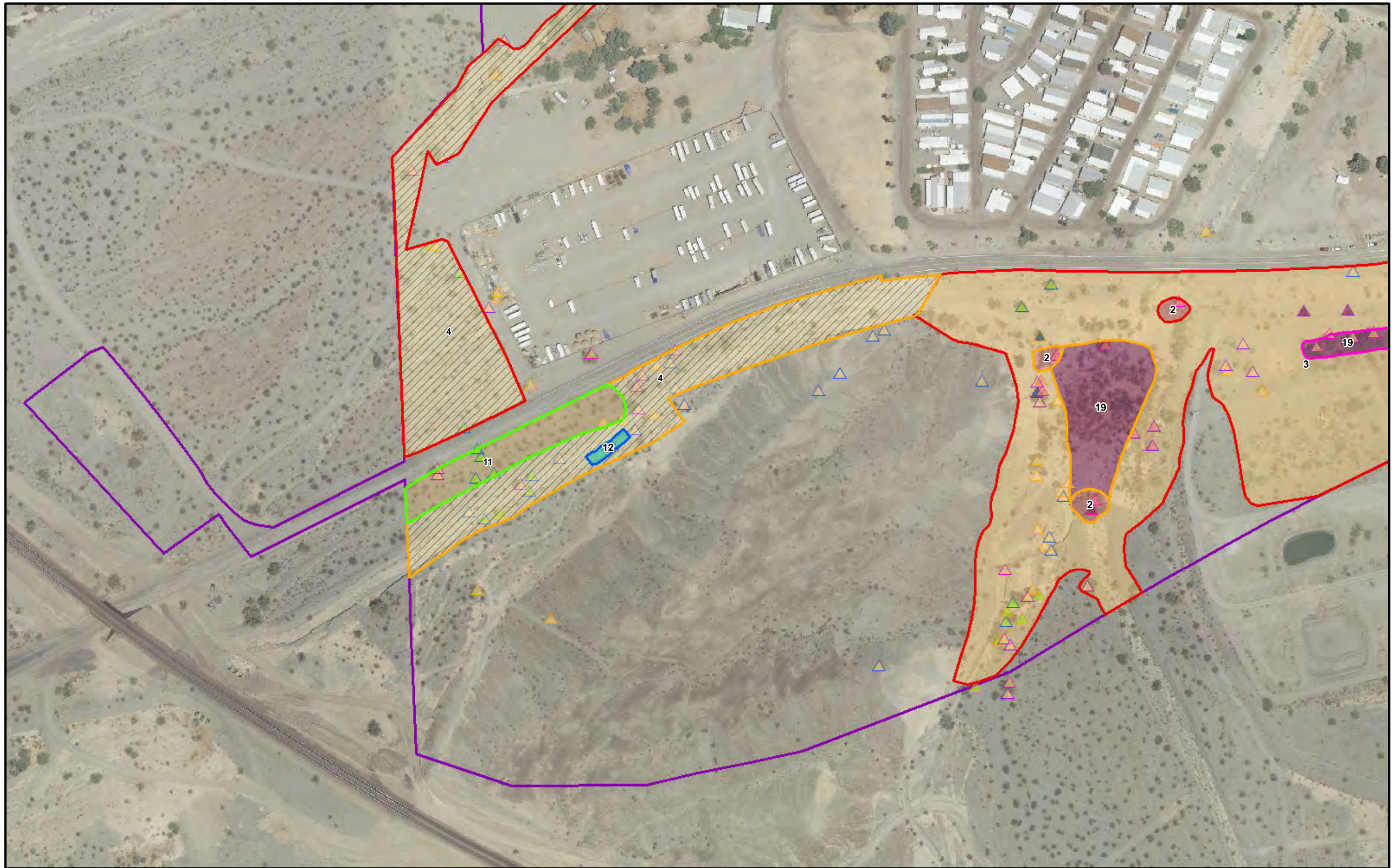
	Restoration Area (31)
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HEIGHT DESIGNATIONS

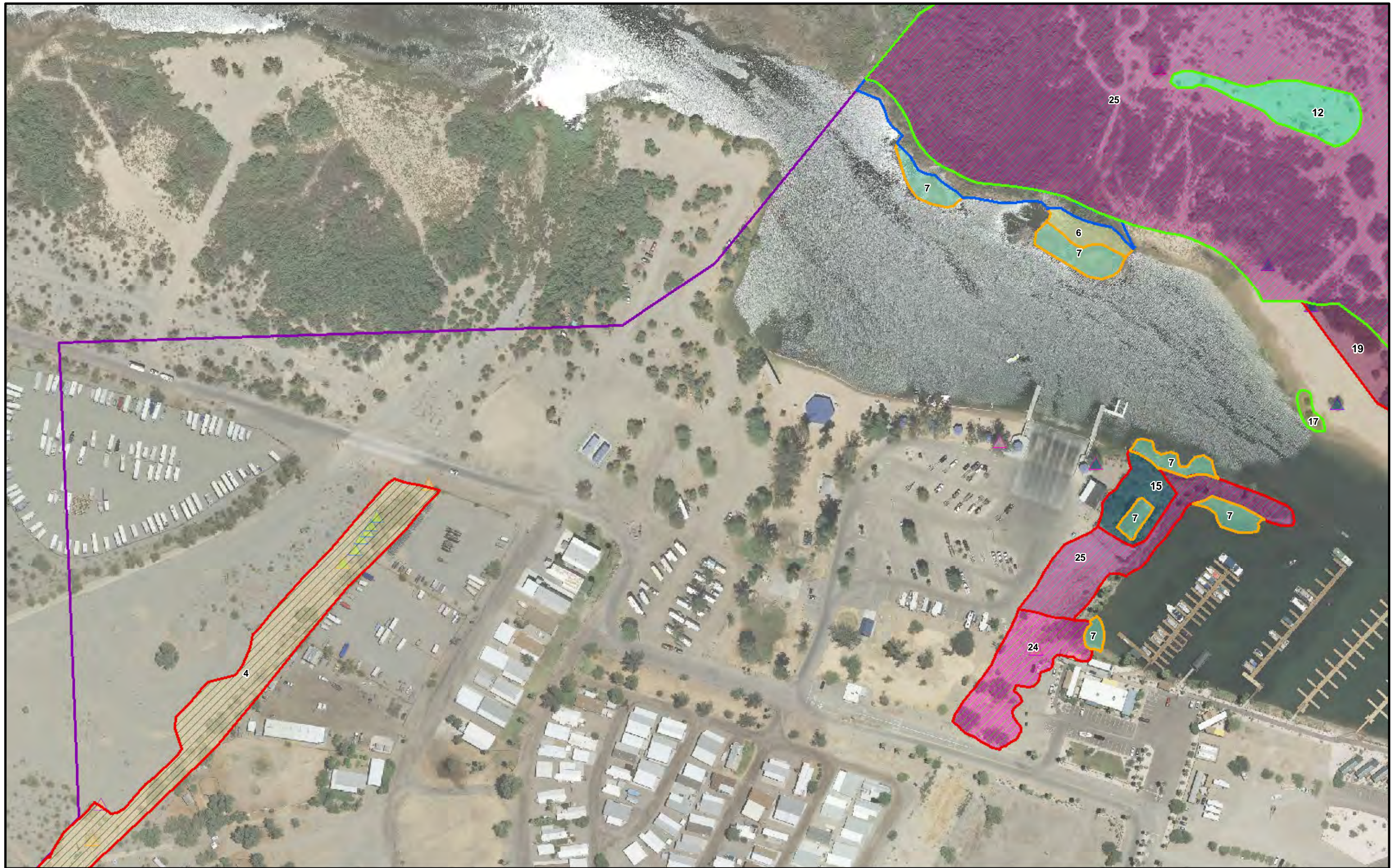
- Very Tall features are outlined in PINK
- Tall features are outlined in PURPLE
- Medium features are outlined in ORANGE
- Short features are outlined in BLUE
- Features with multiple height classes are outlined in GREEN







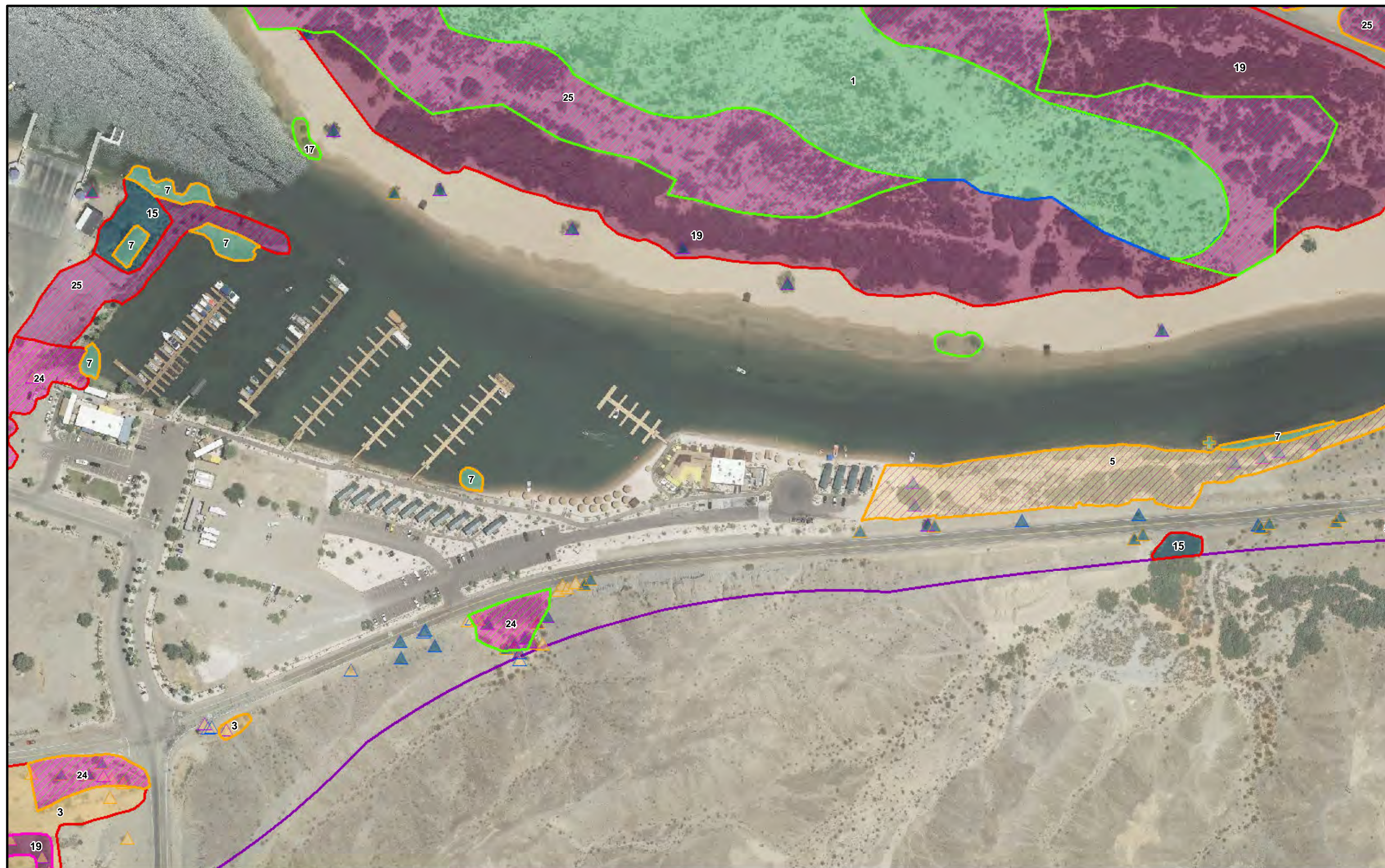




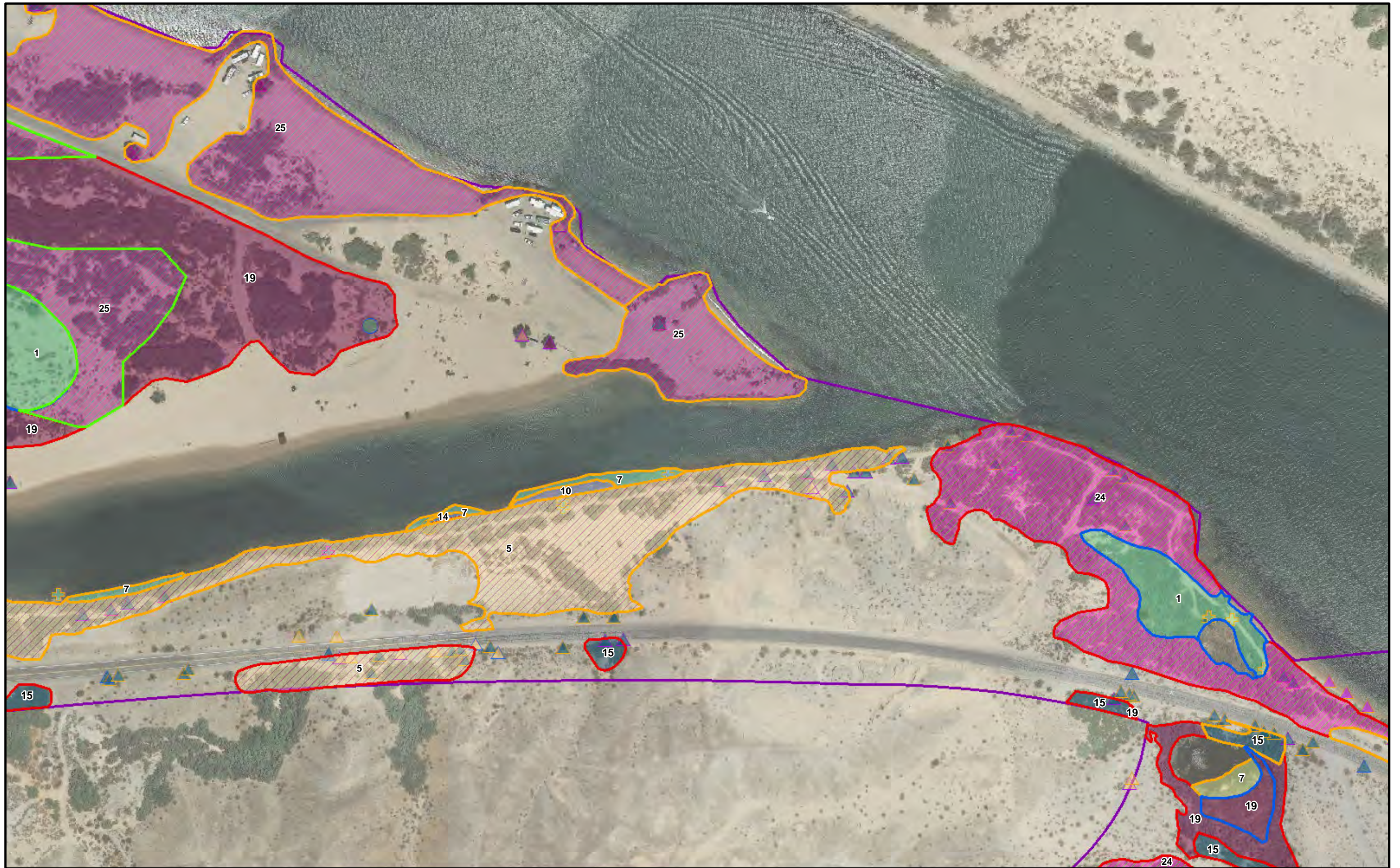
















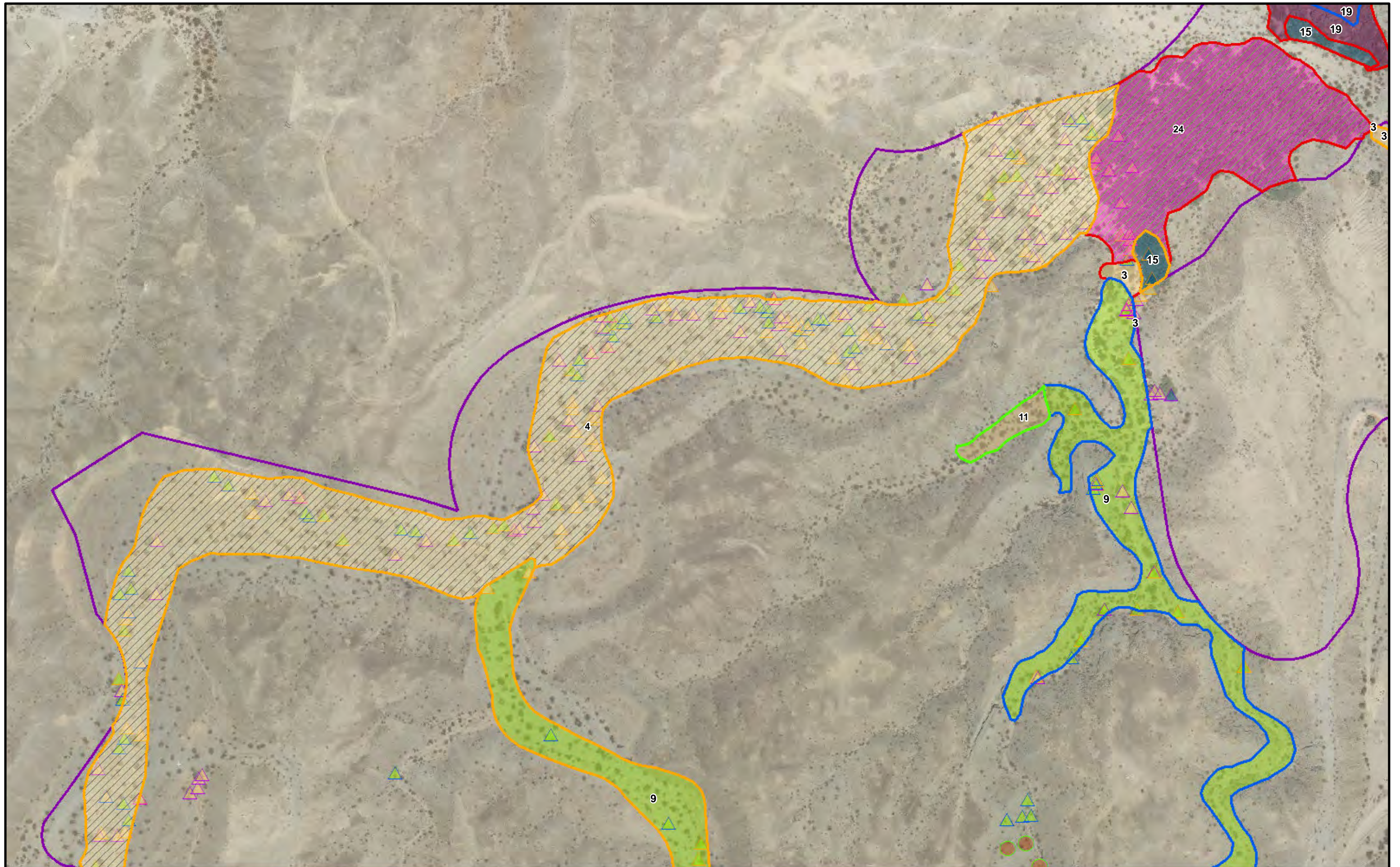




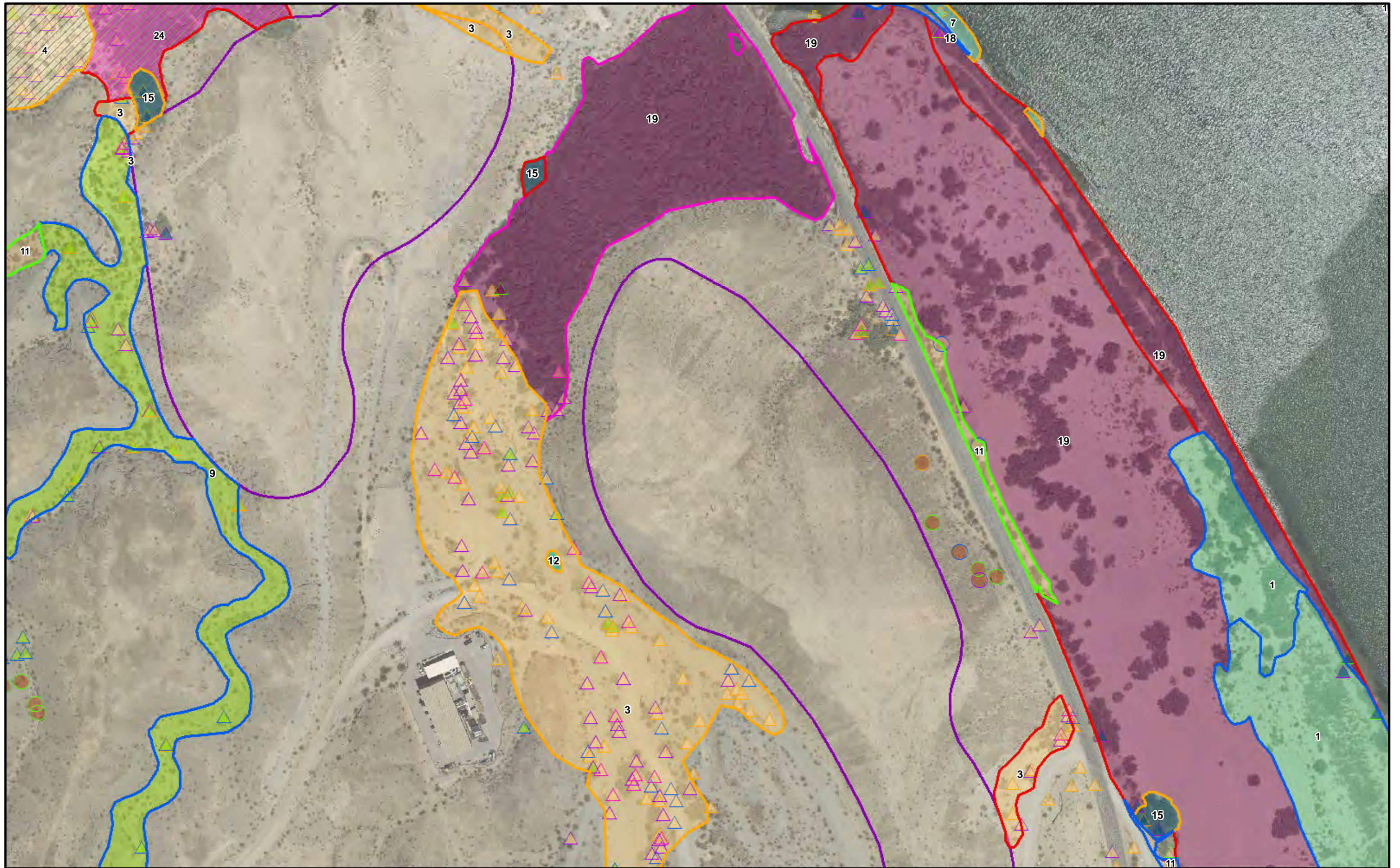




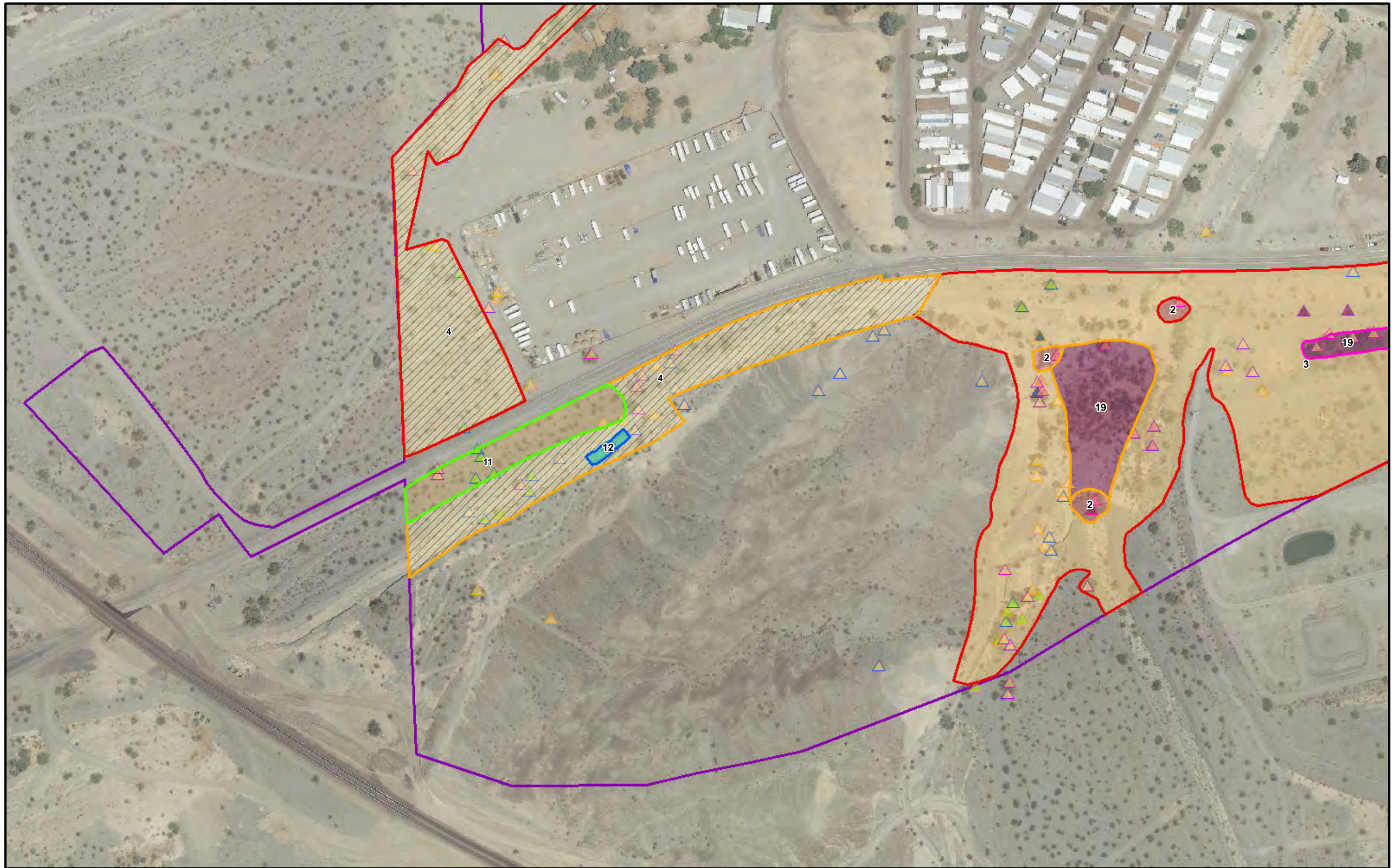




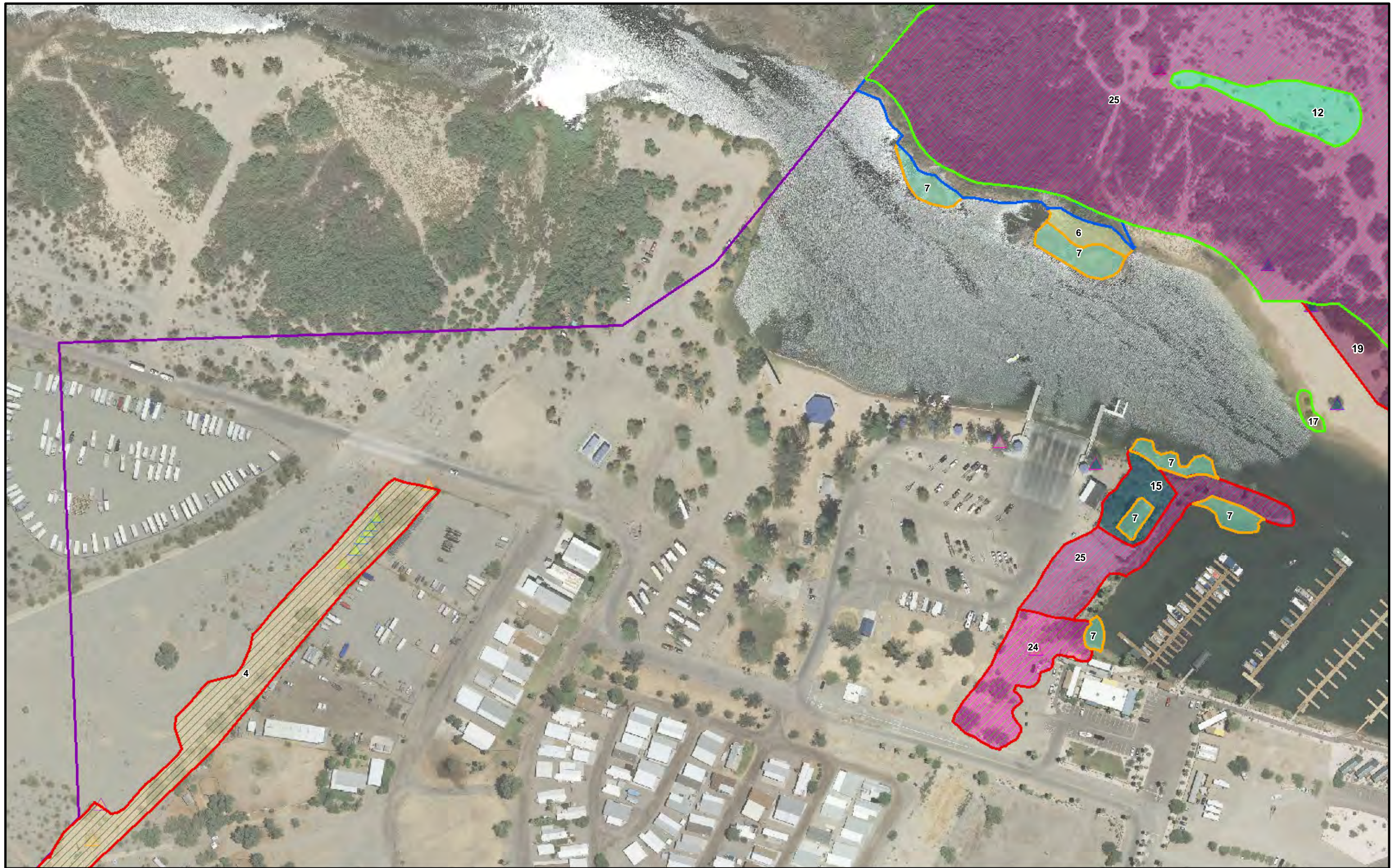








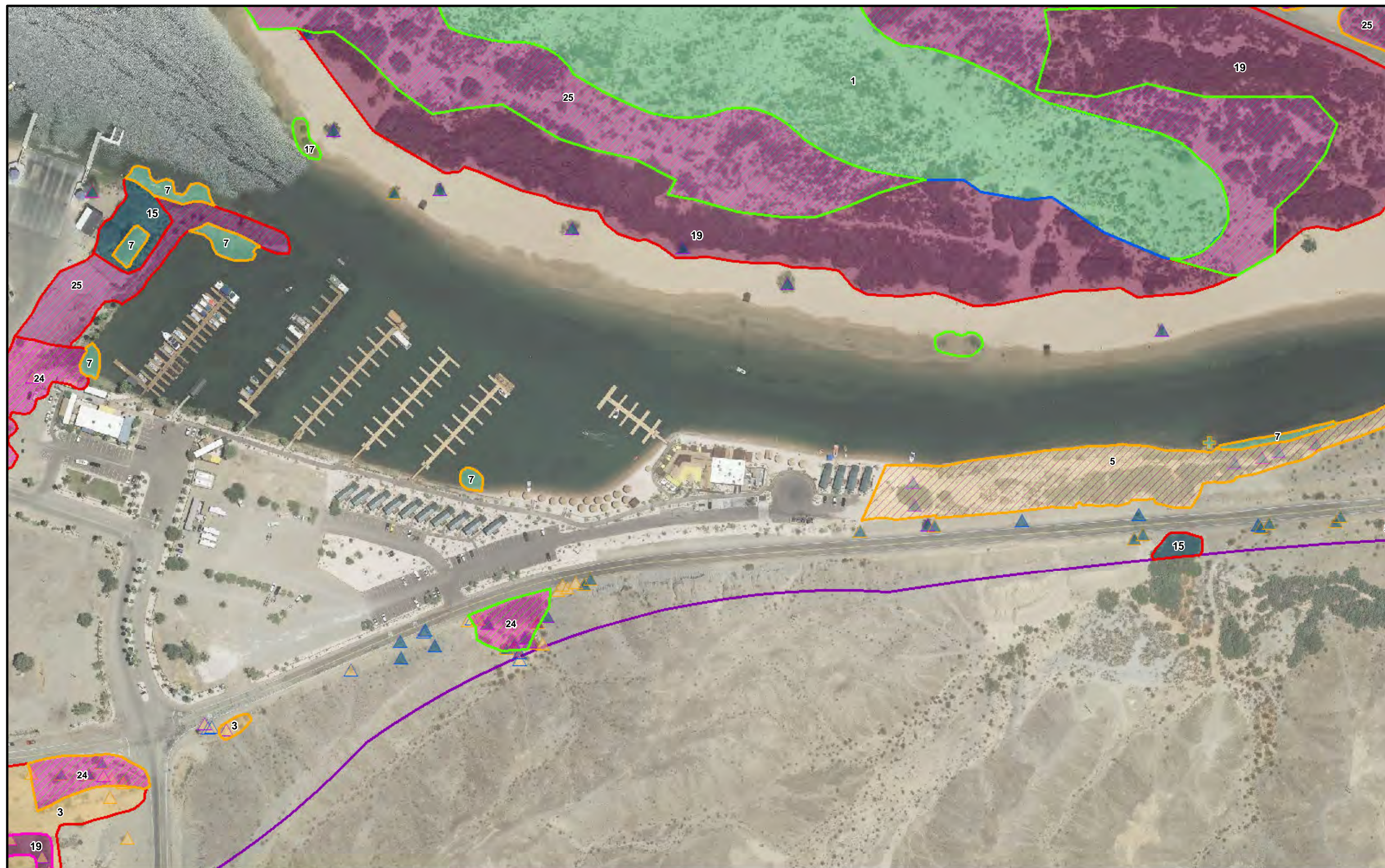




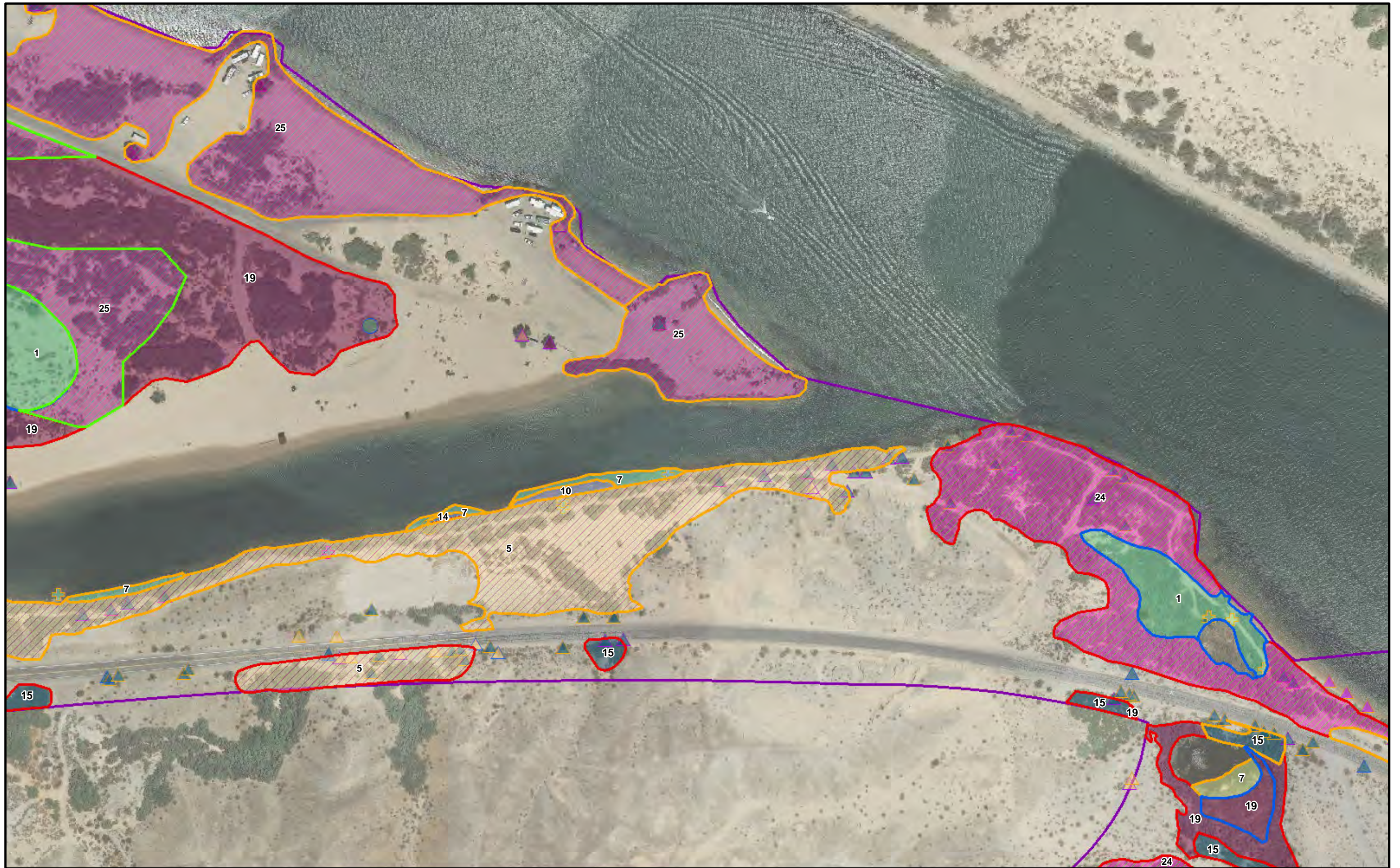
















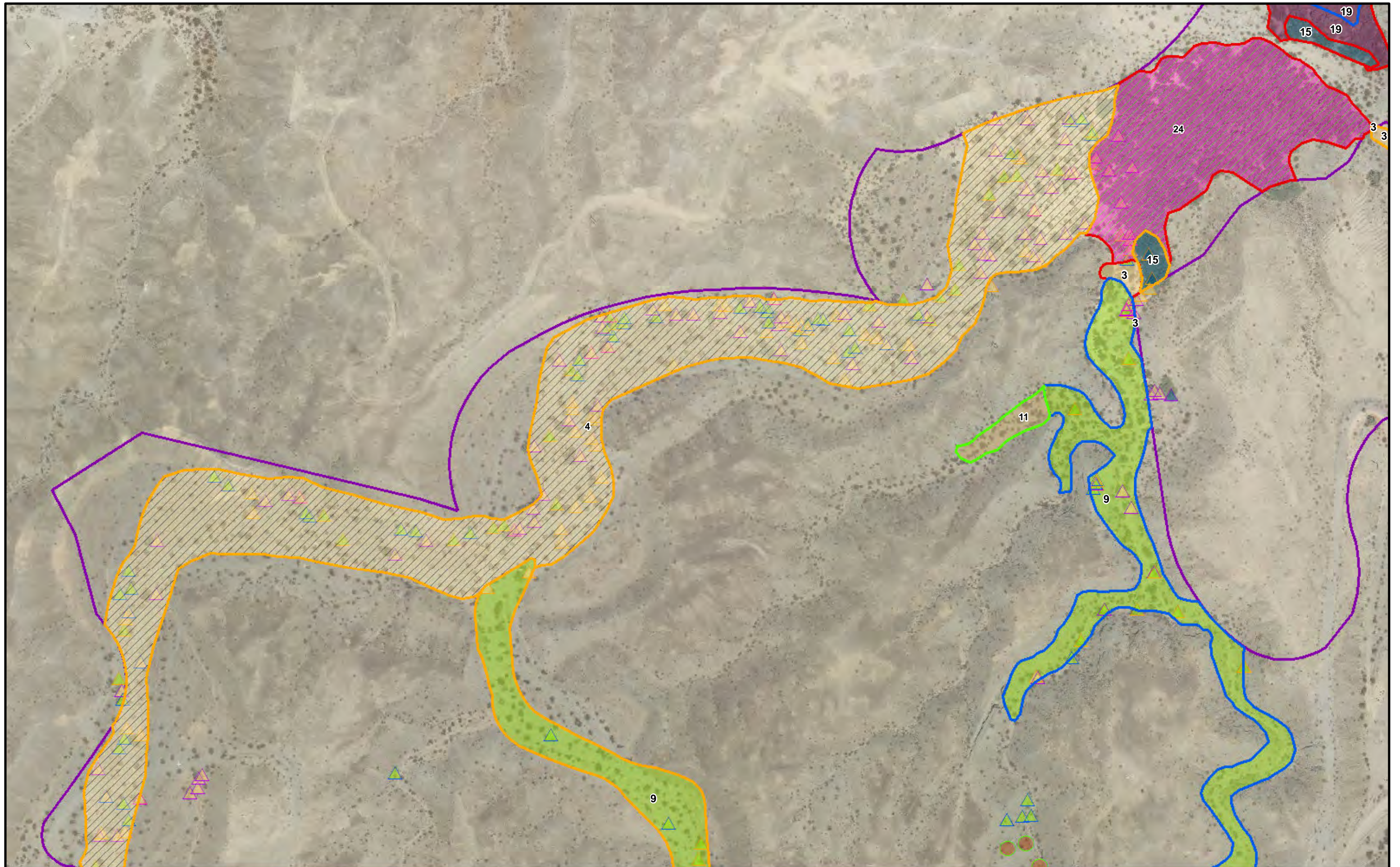




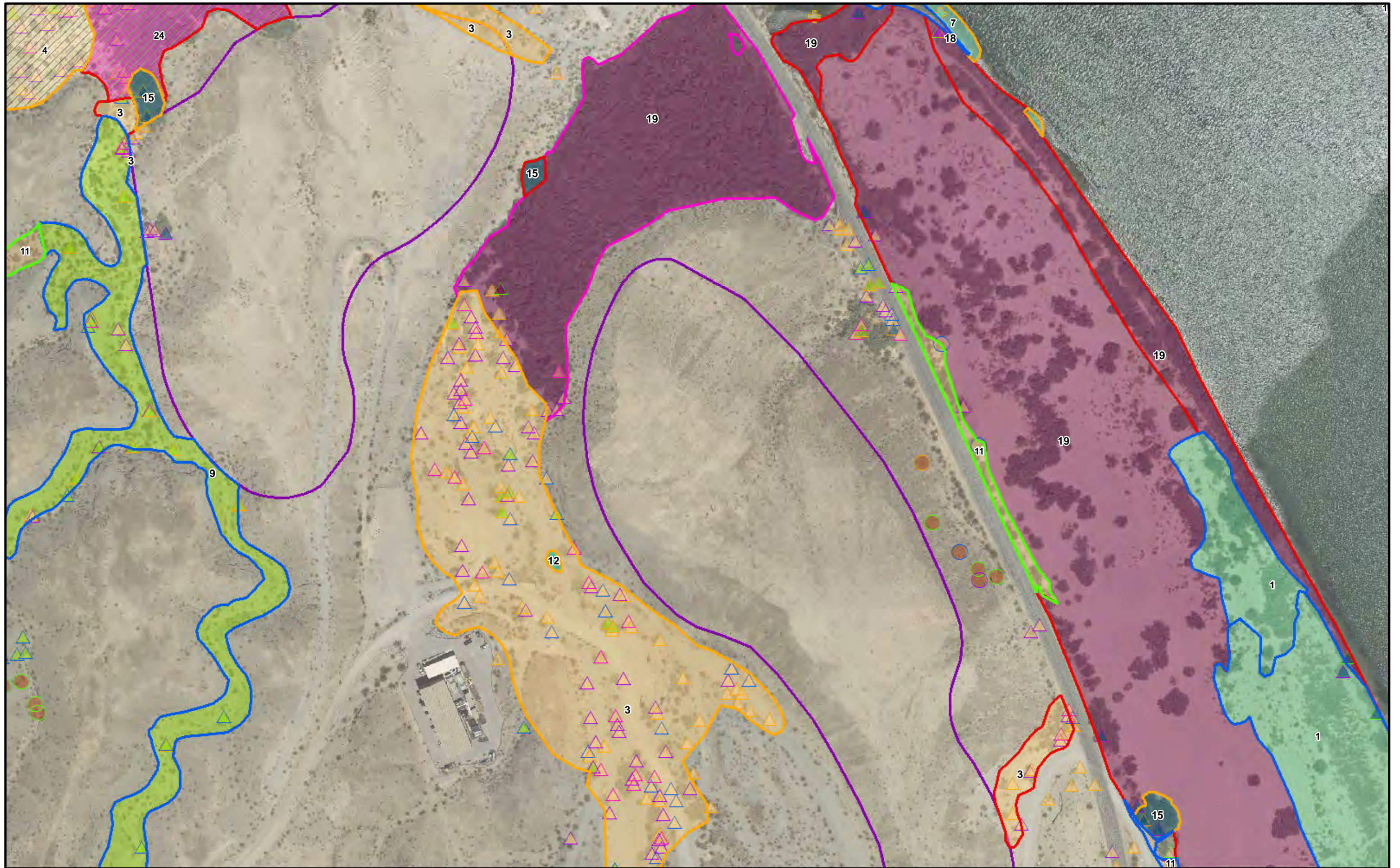














**Attachment B**  
**Representative Photographs**

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## **Attachment B – Representative Photographs**

PG&E Topock Compressor Station

Mature Plant Survey Addendum



Added survey area on west side of Topock-Oatman Highway burned in 2008 wildfire and subsequently cleared by the Havasu National Wildlife Refuge with scattered re-sprouts of athel tamarisk



Added survey area on west side of Topock-Oatman Highway burned in 2008 wildfire and subsequently cleared by the Havasu National Wildlife Refuge with scattered wood chip and woody debris

## **Attachment B – Representative Photographs**

PG&E Topock Compressor Station

Mature Plant Survey Addendum



Screw bean mesquite planted as part of the Havasu National Wildlife Refuge 22-acre habitat restoration project in part of the burn area west of the Oatman-Topock Highway



Scattered quailbush in the southern part of the added survey area, west of the Oatman-Topock Highway



## **Attachment B – Representative Photographs**

PG&E Topock Compressor Station

Mature Plant Survey Addendum



Blue palo-verde trees on the earthen berm along the Sacramento Wash in the northern part of the additional survey area, on the west side of the Oatman-Topock Highway



Athel tamarisk along the east side of the Oatman-Topock Highway